

Seasonal Wind Roses
For
Ontario

Report WR-79-1
Winter

Air Quality and Meteorology Section
Air Resources Branch
Ontario Ministry of the Environment
March 1979

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Report WR-79-1
Winter

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In this report we present seasonal wind roses for Ontario wind stations based on data collected by the atmospheric Environment Service of Environment Canada and the Air Resources Branch of Environment Ontario. These are soon to be supplemented by statistics from wind stations operated by Ontario Hydro.

The report also shows unbiased wind roses where it was felt to be appropriate.

Publications used in compiling these wind roses include:

1. Air Resources Branch, Wind Data Files 1970-1977
2. Atmospheric Environment Service, Canadian Normals, Vol. 3, Wind, 1955-1972
3. Meteorological Branch, Dept. of Transport, Climatic Summaries for Selected Meteorological Stations in Canada, Vol. 11 (revised) 1959
4. Meteorological Branch, Dept. of Transport, Climatic Summaries for Selected Meteorological Stations Vol. 11, 1948

HOW TO USE THIS REPORT

1. As in our first publication WR 78-1 this report, is used in the same manner. You have a list of stations that refer to the appropriate page number.
2. To find the wind rose for an area of interest find the nearest wind stations from the Map of Wind Stations (Figure 1), then refer to the given page number.
3. In a few instances, you will be able to compare, the unbaised wind rose with the originals. The same-transformation information used in our WR-78-1A applies to these bias.

Table 1

LIST OF WIND STATIONS

Page	
1.	Allanburg
2.	Armstrong
3.	Atikokan
4.	Camp Borden
5.	Caribou Island
6.	Cartier
7.	Centralia
8.	Chalk River
9.	Chapleau
10.	Cobourg
11.	Cochrane
12.	Cornwall (ARB)
13.	Cornwall (Ontario Hydro)
14.	Courtright (Level 1)
15.	Courtright (Level 2)
16.	Courtright (Level 3)
17.	Cove Island
18.	Delhi
19.	Douglas Point
20.	Earlton
21.	Etobicoke (Level 1)
22.	Etobicoke (Level 2)
23.	Etobicoke (Level 3)
24.	Fergus Shand Dam
25.	Geraldton
26.	Gore Bay
27.	Graham
28.	Great Duck Island
29.	Guelph
30.	Haileybury
31.	Hamilton (Marine Police)
32.	Hamilton (RBG)
33.	Hamilton (ARB) (Level 1)
34.	Hamilton (ARB) (Level 2)

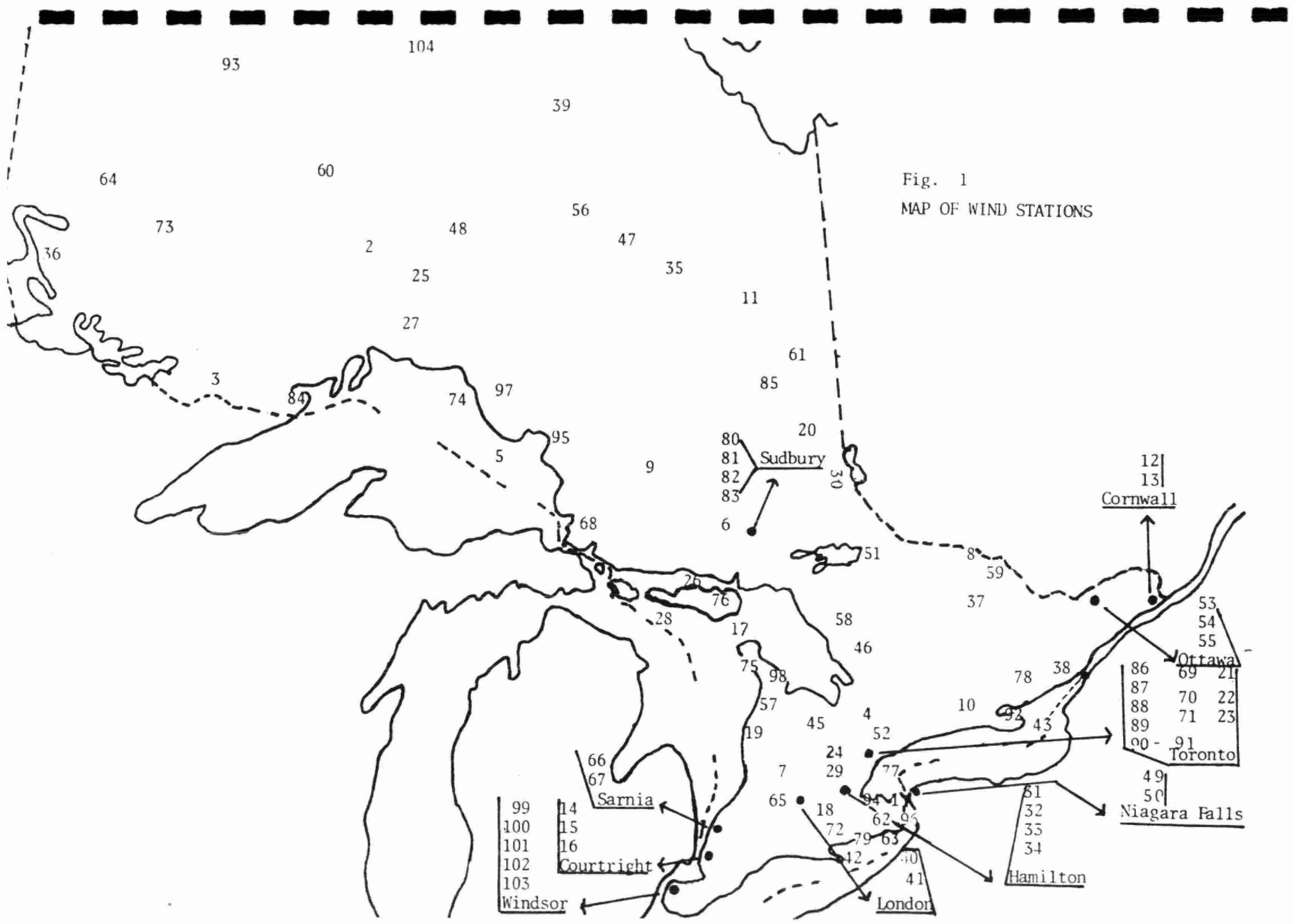
Page	
35.	Kapuskasing
36.	Kenora
37.	Killaloe
38.	Kingston
39.	Landsdowne House
40.	London (Crumlin)
41.	London (Lambeth)
42.	Long Point
43.	Main Duck Island
44.	Moosonee
45.	Mount Forest
46.	Muskoka
47.	Nagagami
48.	Nakina
49.	Niagara Falls (ARB)
50.	Niagara Falls (Grass Island)
51.	North Bay
52.	Oak Ridges
53.	Ottawa (Int'l A)
54.	Ottawa (NRC)
55.	Ottawa (Rockcliffe)
56.	Pagwa
57.	Paisley
58.	Parry Sound
59.	Petawawa
60.	Pickle Lake
61.	Porquis Junction
62.	Port Colborne Light
63.	Pt. Maitland
64.	Red Lake
65.	St. Thomas
66.	Sarnia

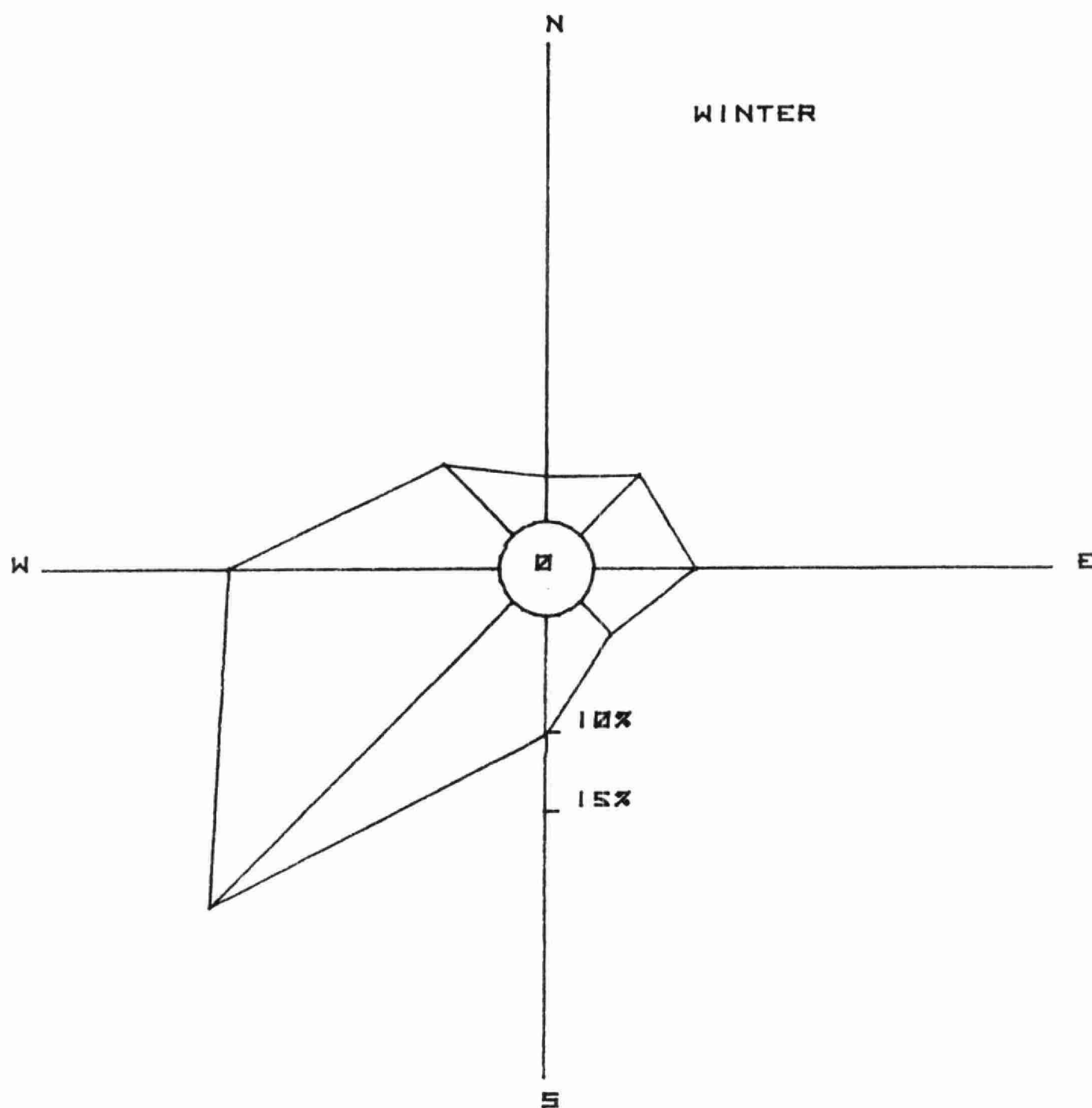
Page

67. Sarnia (Polysar)
68. Sault Ste. Marie
69. Scarborough (ARB) (Level 1)
70. Scarborough (ARB) (Level 2)
71. Scarborough (ARB) (Oliver Mowatt P.S.)
72. Simcoe
73. Sioux Lookout
74. Slate Island
75. Southampton
76. South Baymouth
77. St. Catharines
78. Sterling
79. Stormness
80. Sudbury (A)
81. Sudbury Ash St.
82. Sudbury (ARB) (Level 1)
83. Sudbury (ARB) (Level 3)
84. Thunder Bay
85. Timmins
86. Toronto (ARB) (Bruce P.S.)
87. Toronto (Downsview)
88. Toronto (Int'l A)
89. Toronto (Agincourt)
90. Toronto Island (A) (ARB)
91. Toronto Island (A) (AES)
92. Trenton
93. Trout Lake
94. Vineland
95. Wawa
96. Welland
97. White River
98. Wiarton
99. Windsor (A)

Page

100.	Windsor (ARB) (Level 1)
101.	Windsor (ARB) (Level 2)
102.	Windsor (ARB) (Level 1) (Riverside Drive)
103.	Windsor (ARB) (Level 2) (Riverside Drive)
104.	Winisk





STATION INFORMATION

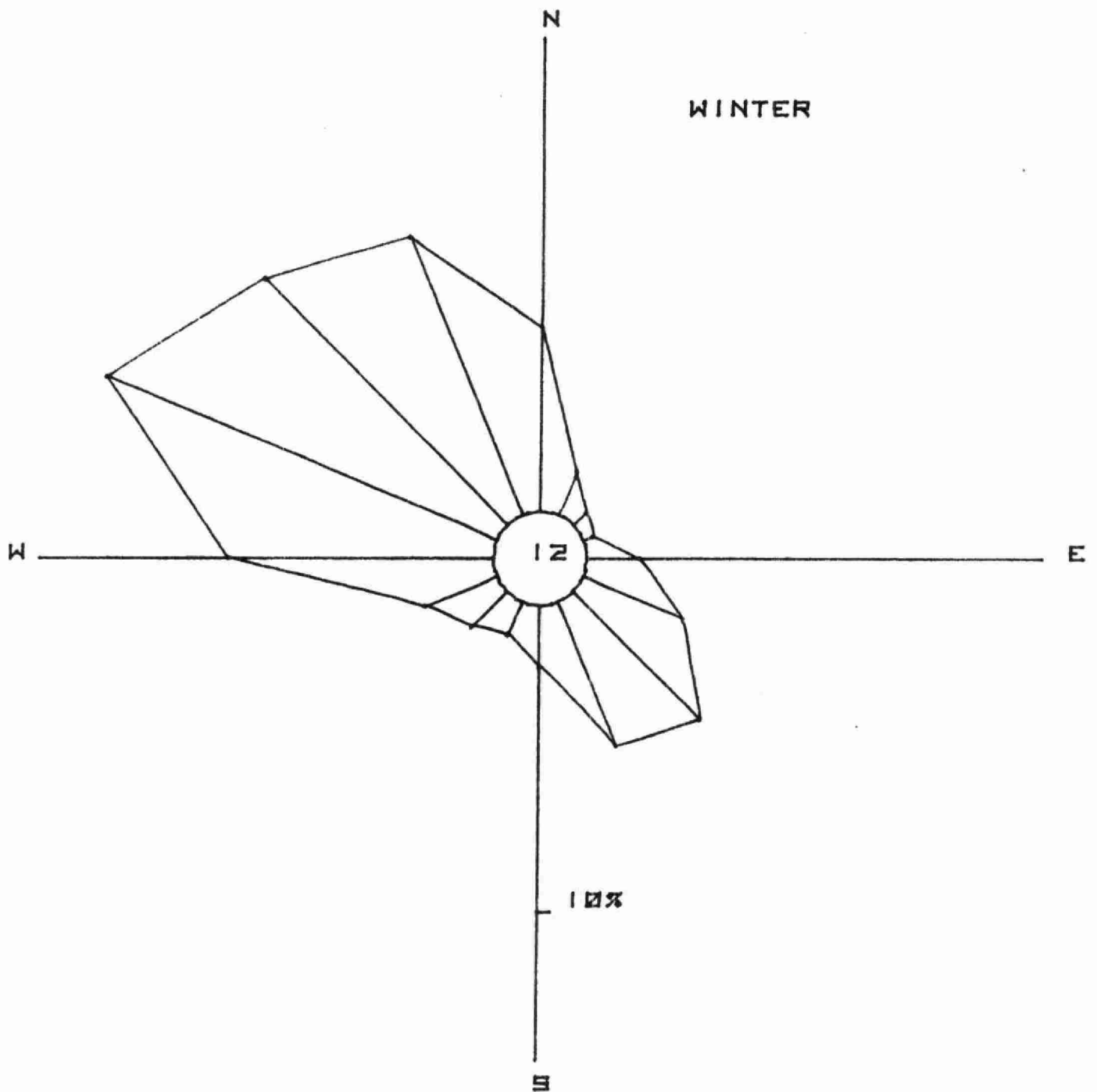
LOCATED
 AT TRANSFORMER STN OFF
 HWY 58, S OF ALLANBURG
 HEIGHT 36.9M

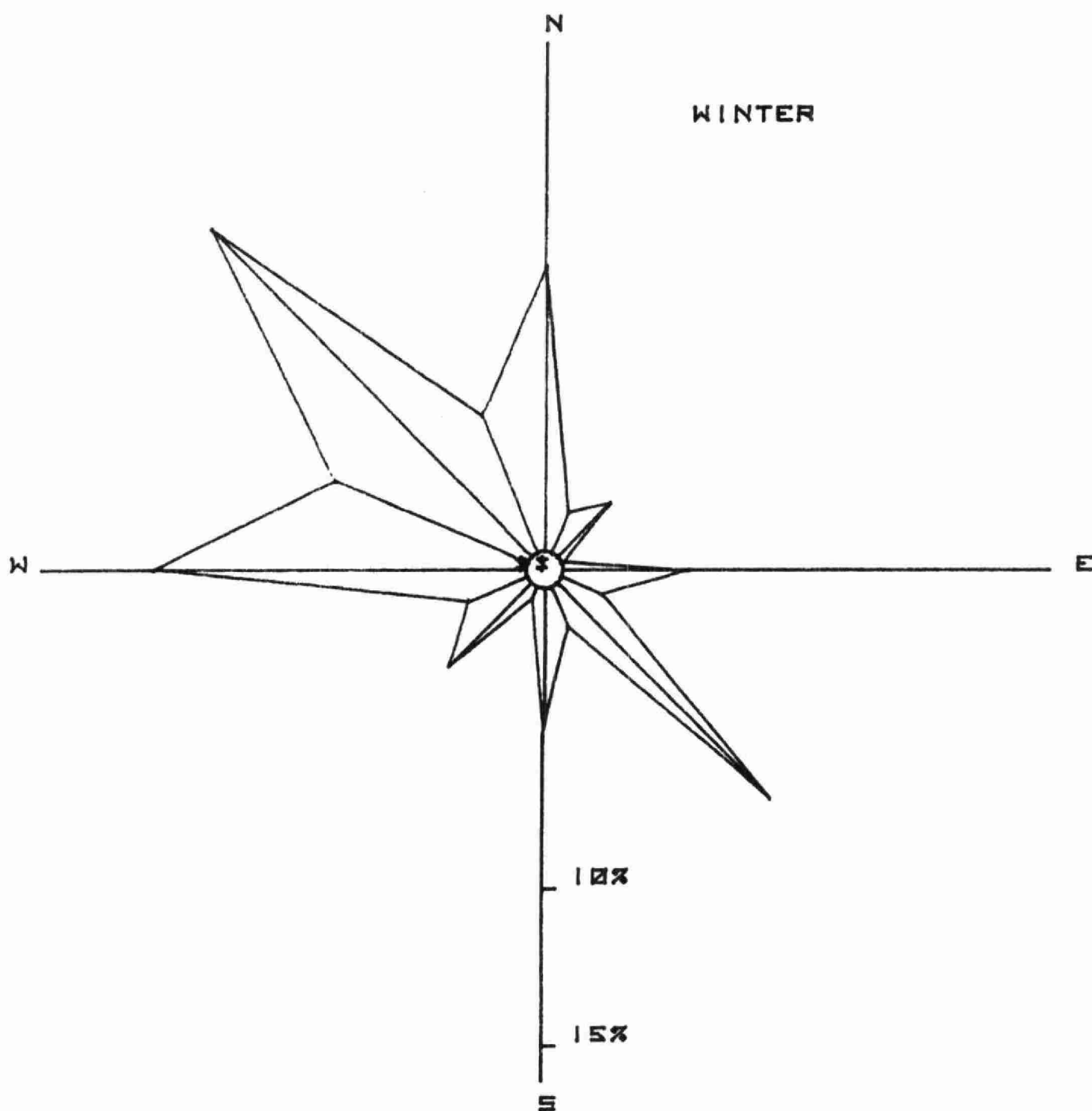
PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
0	0	10	0	11	30	20	0	0

ARMSTRONG (A) (AES) 1955-1968
(BIASES REMOVED)

2



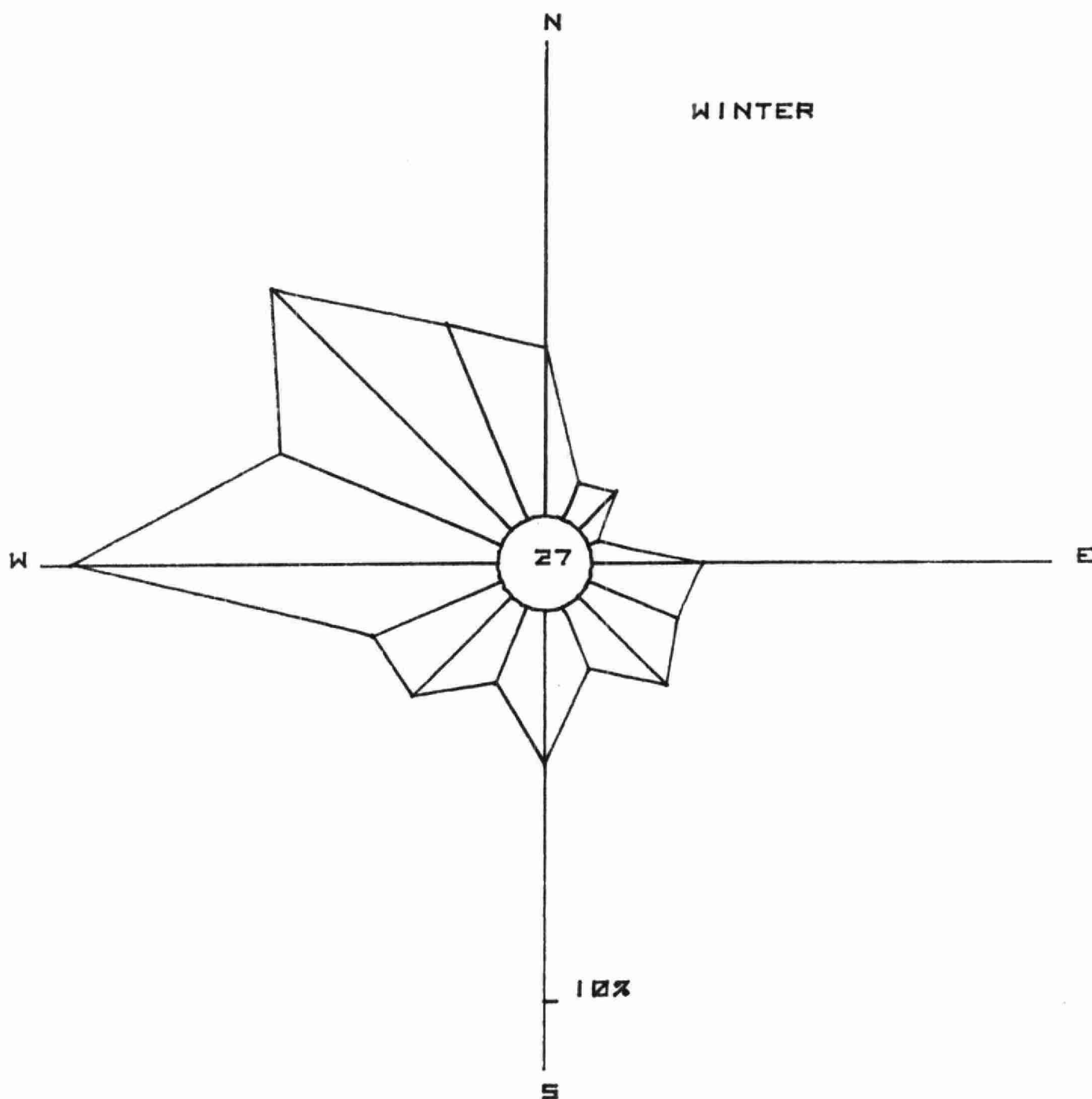


STATION INFORMATION

LOCATED 11.8KM E OF TOWN AT AIRPORT
 AREA WOODDED WITH MANY LAKES AND
 HILLS 1.6-3.2 KM W THRU SSE
 HEIGHT 25.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
0	2	3	1	5	2	10	2	5	1	4	3	13	7	15	5	12



STATION INFORMATION

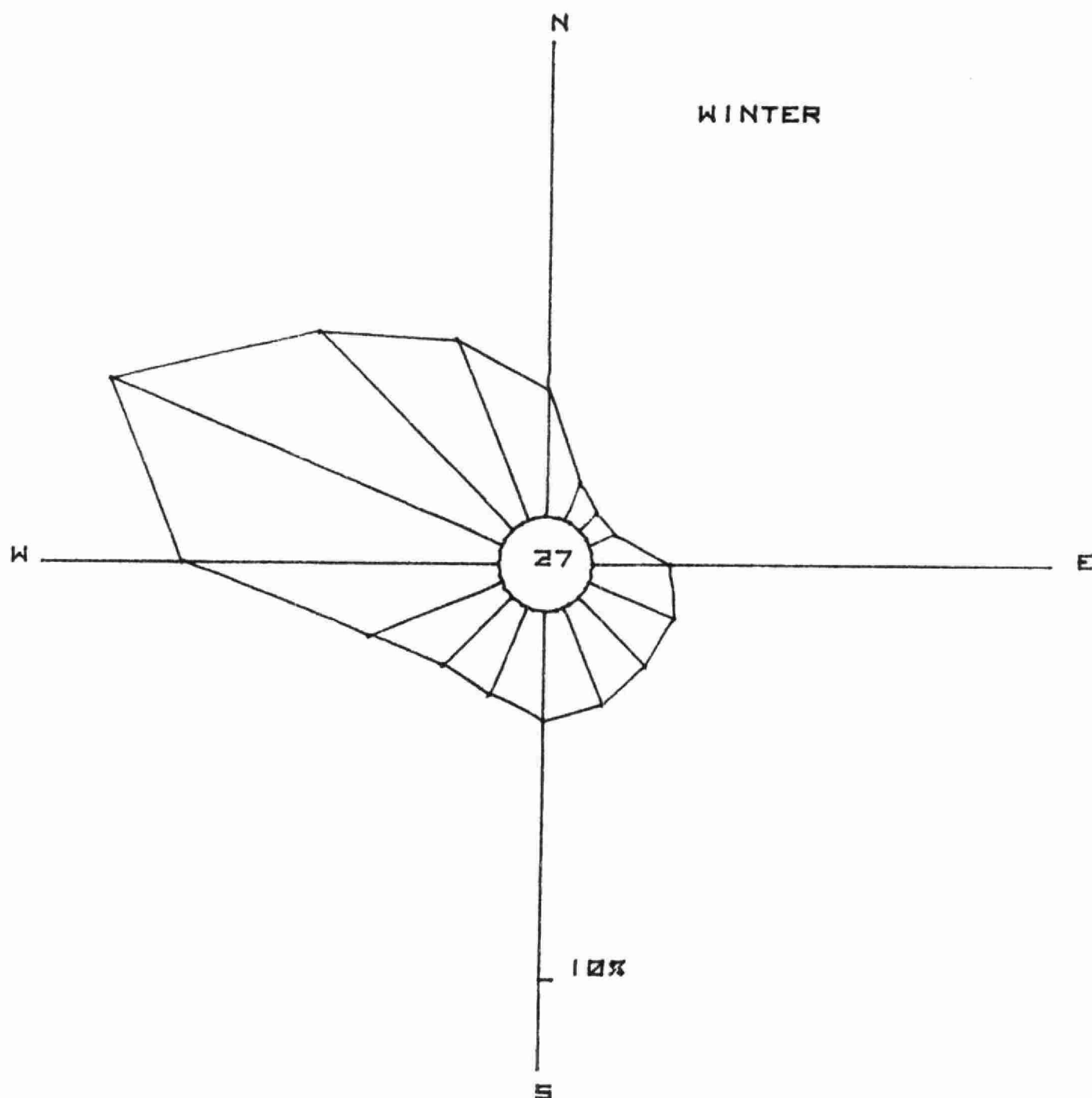
LOCATED E SIDE TOWN NE INTERSECTION HWYS
622 AND 118/HILLY ROCKY MINING TERRAIN
WITH HEAVY BUSH AND MANY LAKES
HEIGHT 13.2 M

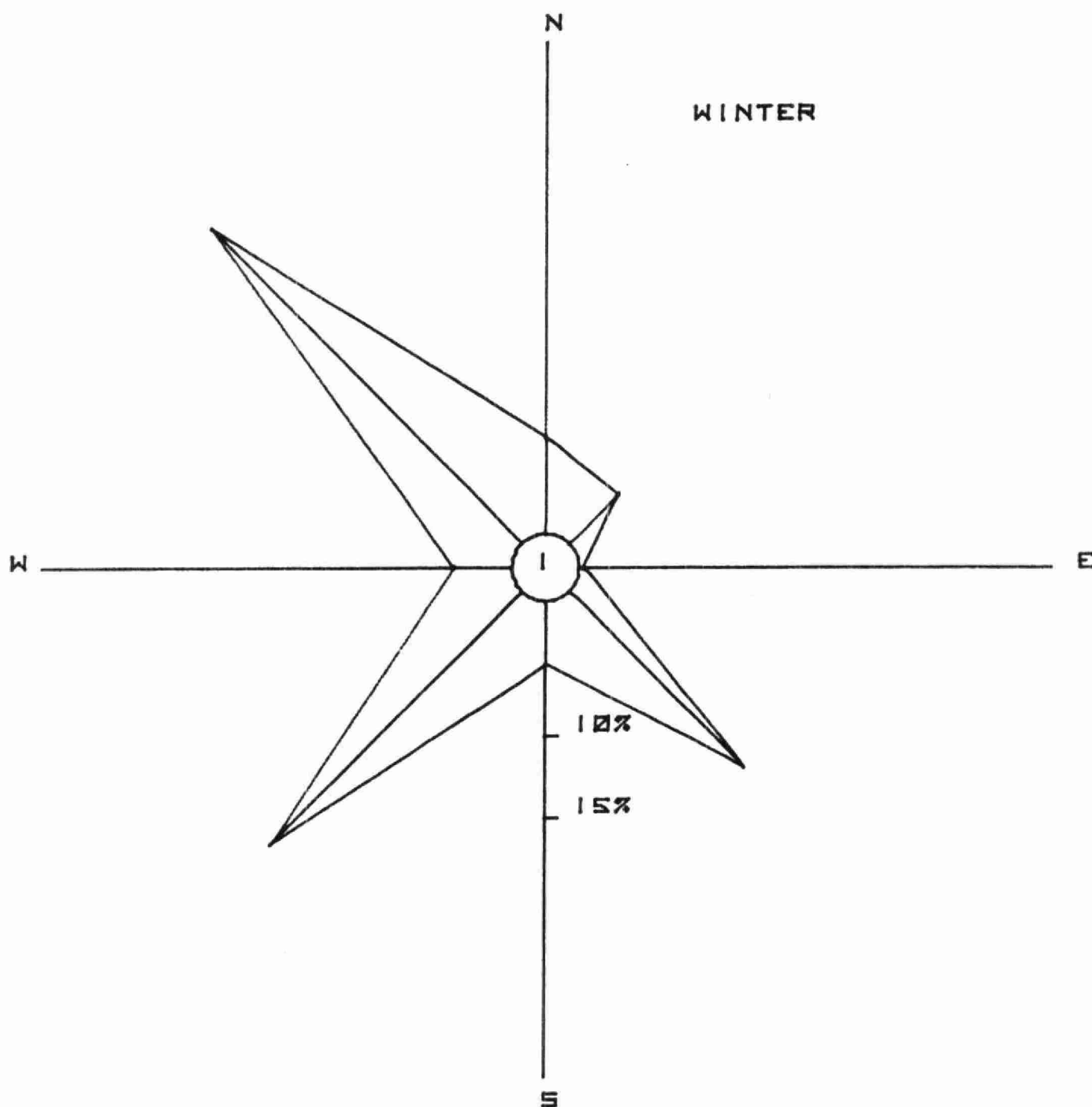
PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
5	2	2	1	4	3	4	3	5	3	4	4	11	7	8	6	27

ATIKOKAN (AES) 1966-1976
(BIASES REMOVED)

13





STATION INFORMATION

LOCATED

S SECTION MILITARY CAMP, AREA IS FLAT AND
WOODED IN ALL DIRECTIONS
HEIGHT 18.4M

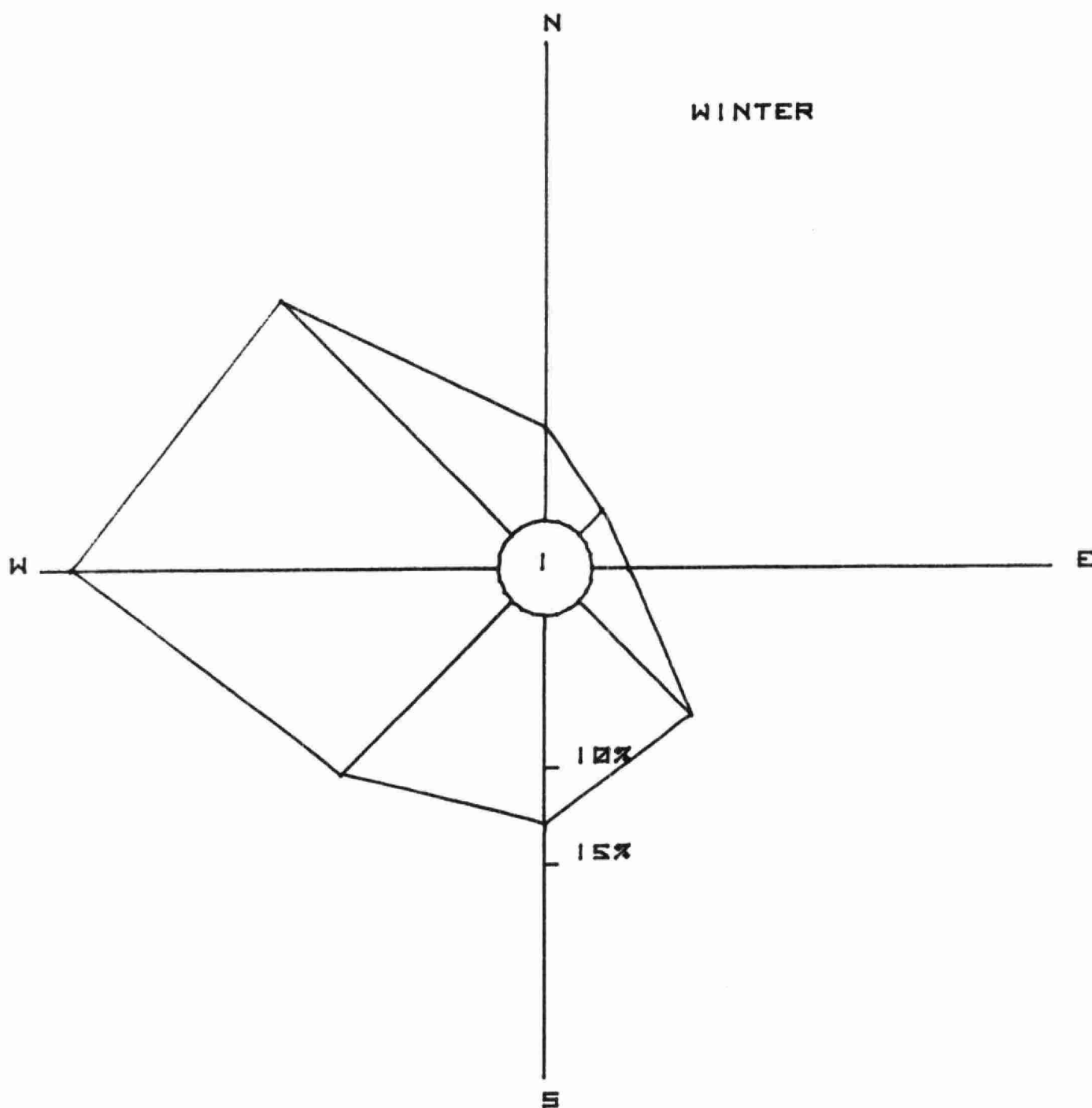
PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
0	0	2	17	0	24	0	20	1

CAMP BORDEN (AES) 1960-1966

(BIASES REMOVED)

4



STATION INFORMATION

LOCATED

S SECTION MILITARY CAMP, AREA IS FLAT AND

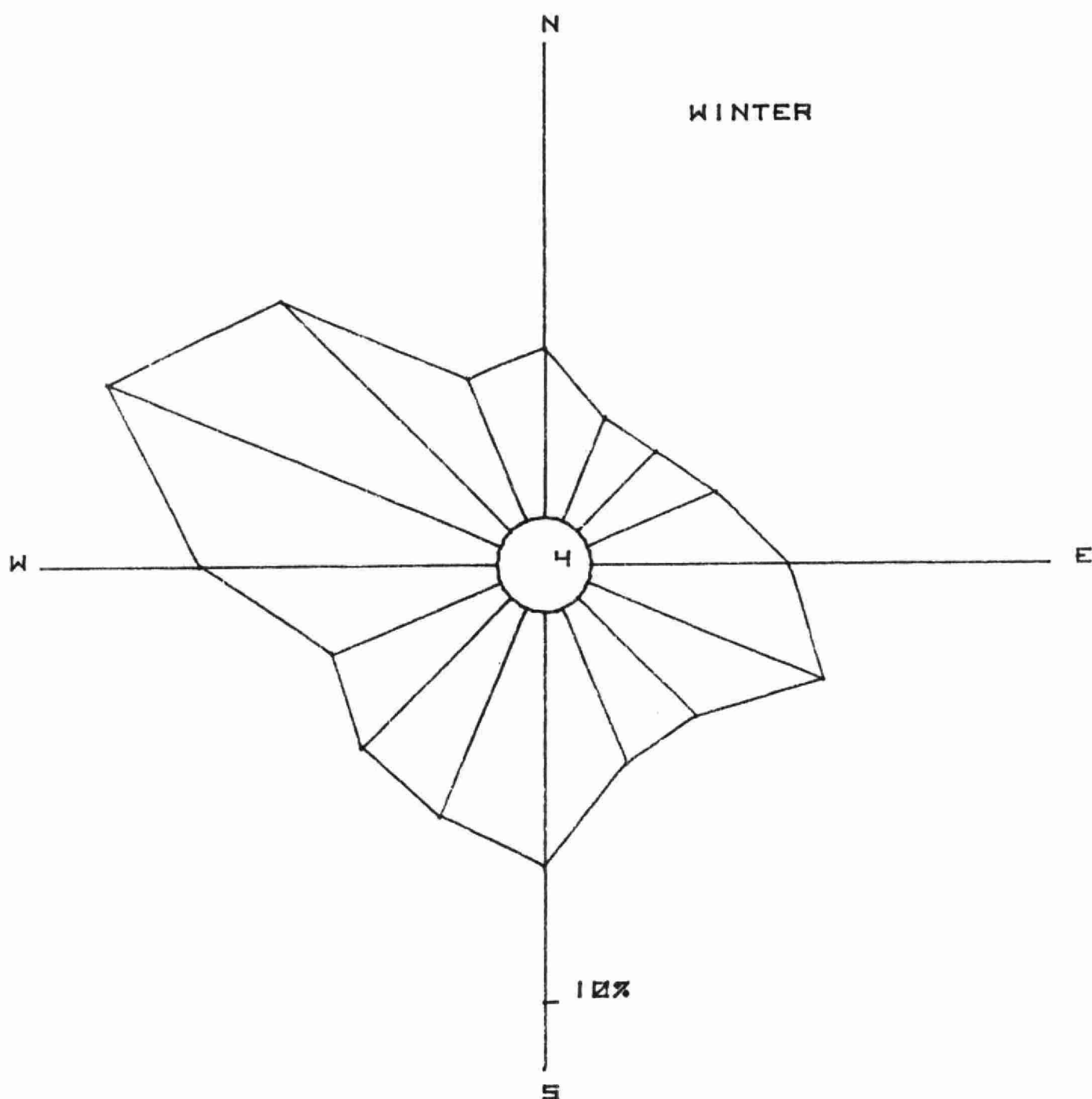
WOODED IN ALL DIRECTIONS

HEIGHT 18.4M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
7	4	4	11	13	15	25	20	1

No DATA for Winter

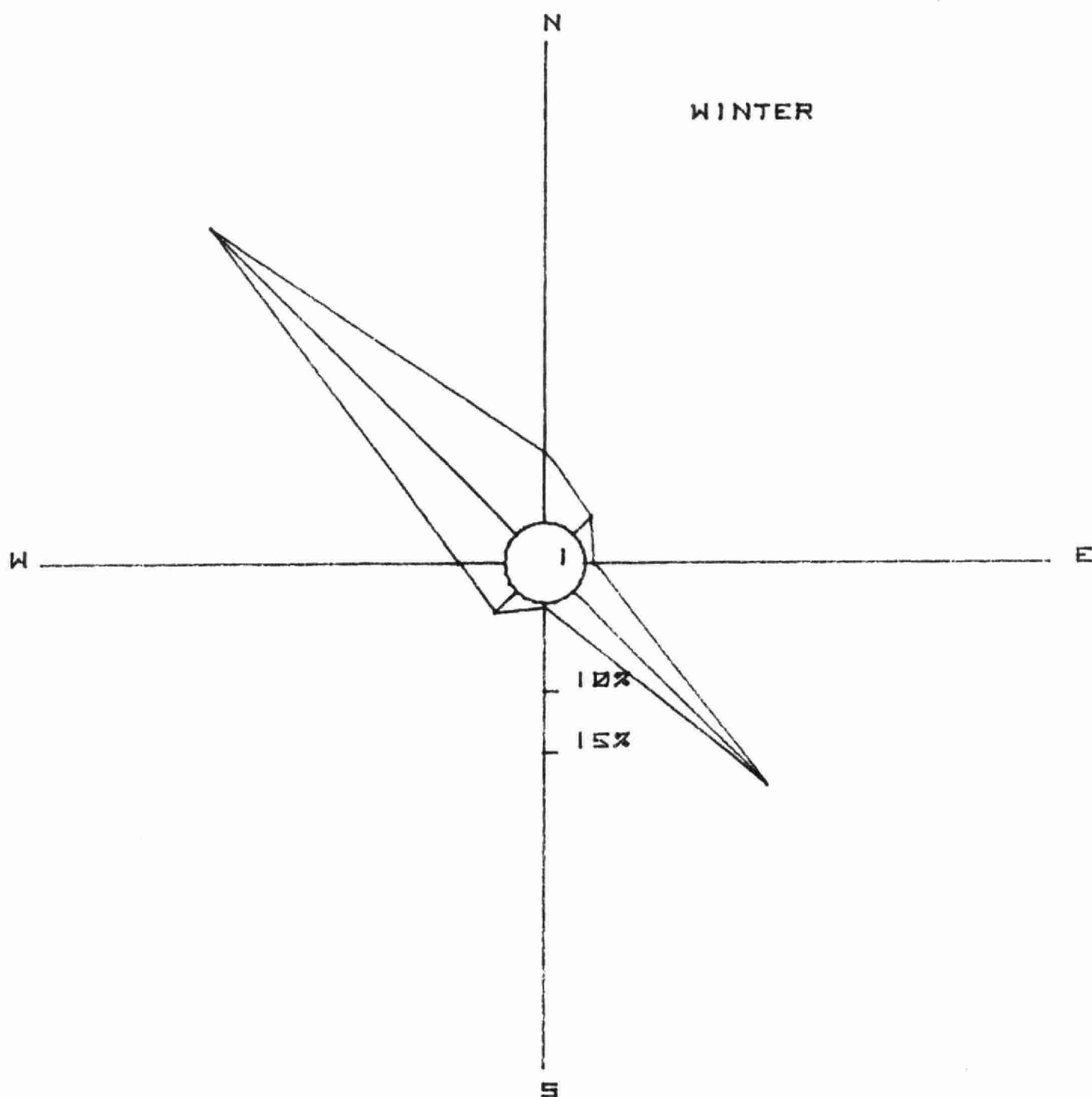


STATION INFORMATION

LOCATED IN
 FLAT COUNTRY 2.4KM W OF TOWN AND
 19.2KM E OF LAKE HURON
 HEIGHT 20.6M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
5	4	4	4	6	7	5	5	7	6	6	5	8	11	8	5	4

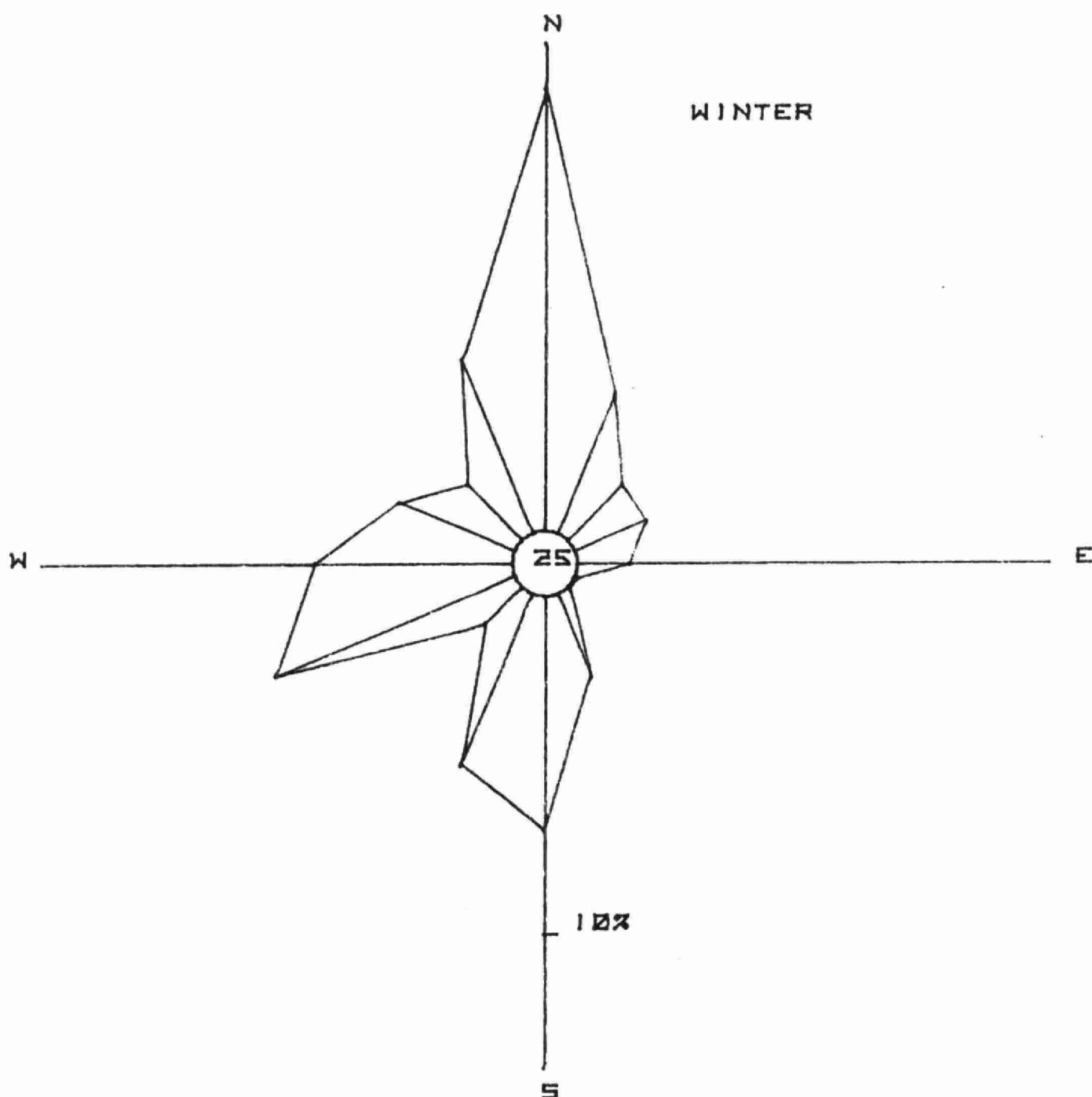


STATION INFORMATION

LOCATED DOMINION FORESTRY STN 1.6KM S OF
TOWN IN A SHALLOW E-W VALLEY. ROLLING
WOODED COUNTRY AROUND STN.
HEIGHT 24.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
5	5	4	26	4	6	7	38	1



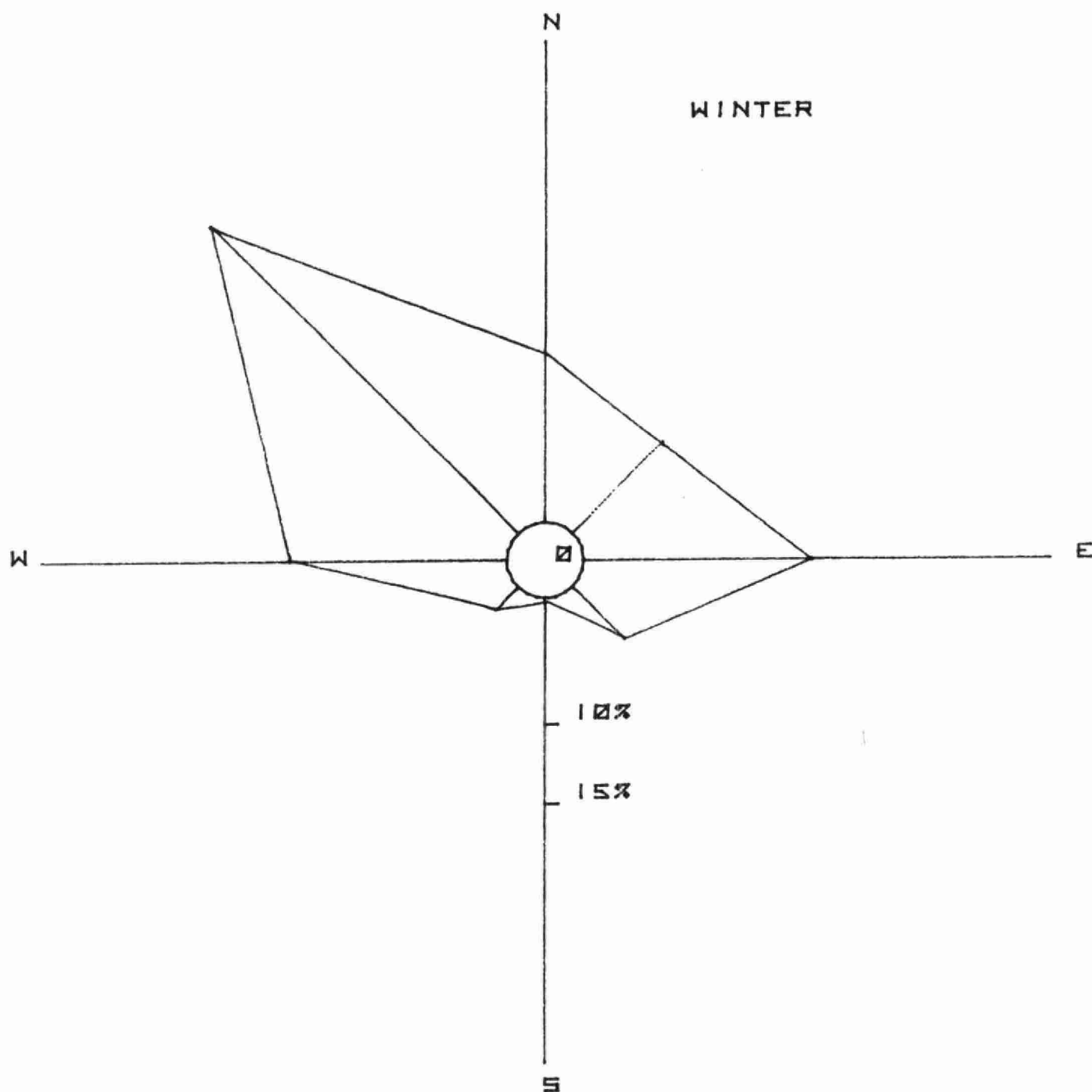
STATION INFORMATION

LOCATED E BANK OF CHAPLEAU RIVER, WOODDED
AND HILLY WITH MANY LAKES AND RIVERS,
SURROUNDED BY VARIOUS BLDGS.
HEIGHT 13.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
3	5	3	3	2	1	1	3	7	8	2	8	8	4	3	8	25

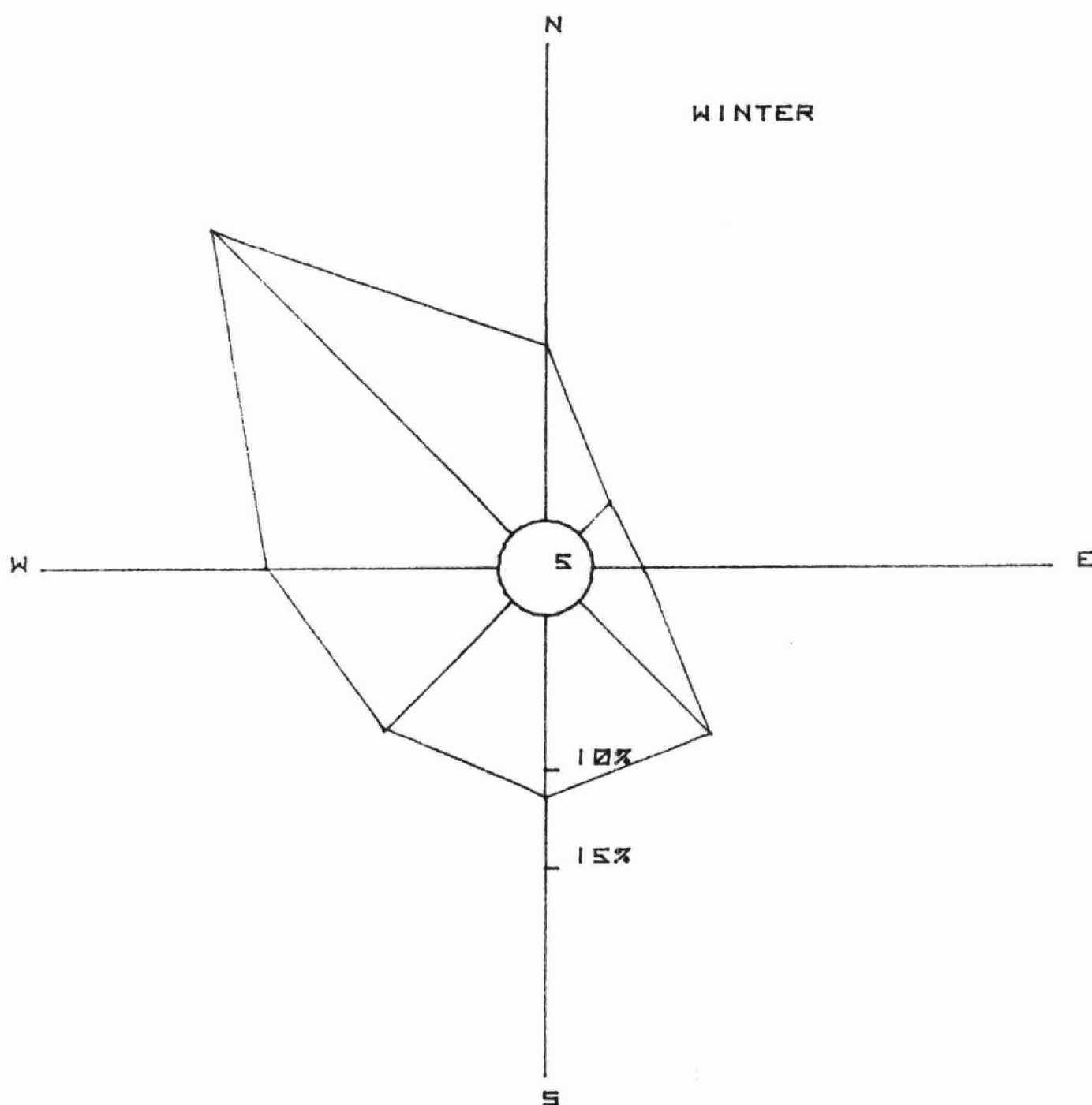
COBOURG (AES) 1939-1950



STATION INFORMATION
 LOCATED WHEN IT WAS OPERATED
 ON DOCK IN
 HARBOUR AT COBOURG
 HEIGHT 12.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
13	10	17	7	3	4	18	30	0

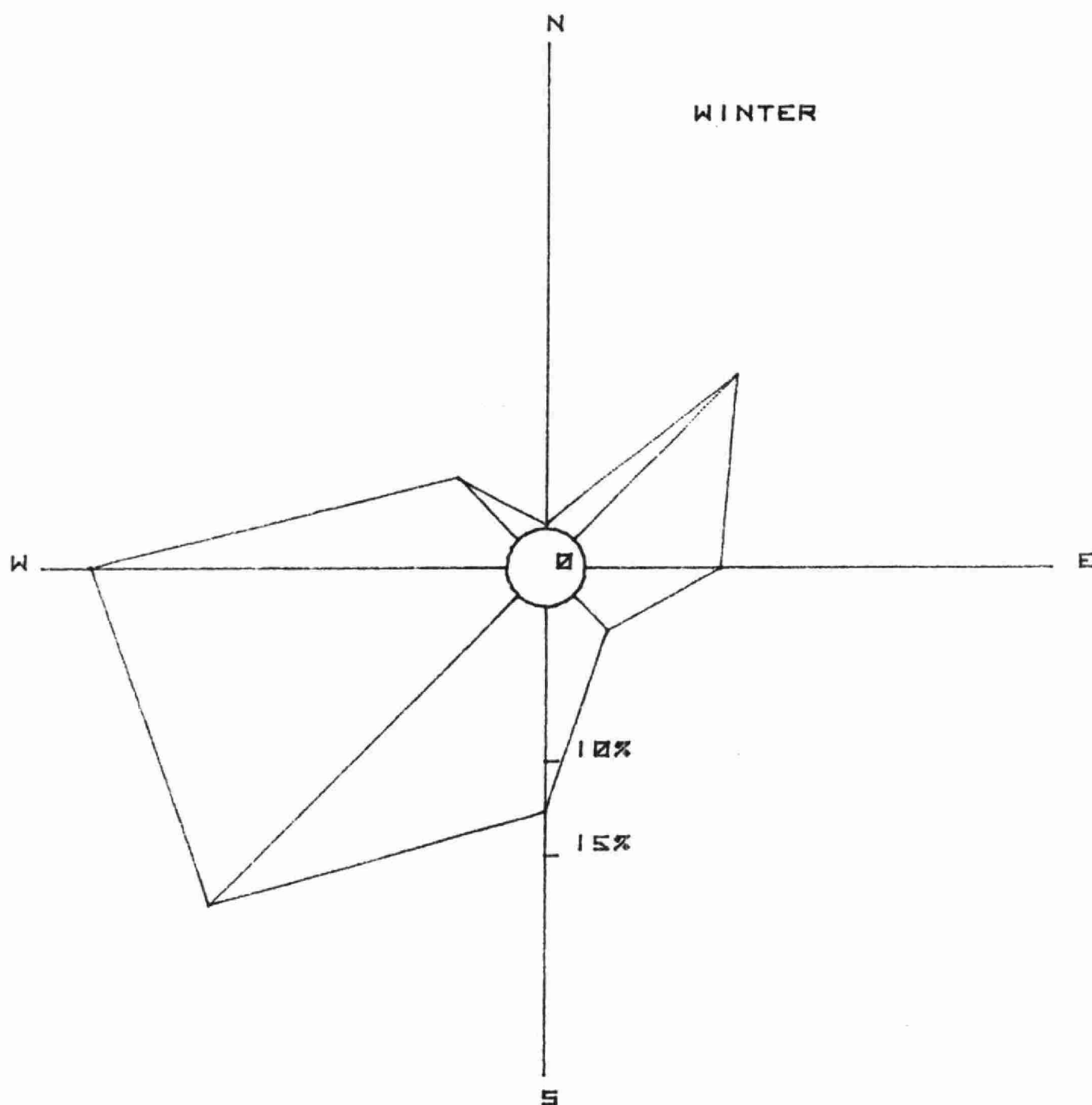


STATION INFORMATION

LOCATED WHEN OPERATED
ON HIGHEST RIDGE OF LAND
RUNNING E-W THROUGH TOWN.
HEIGHT 12.3M

PERCENTAGE FREQUENCY

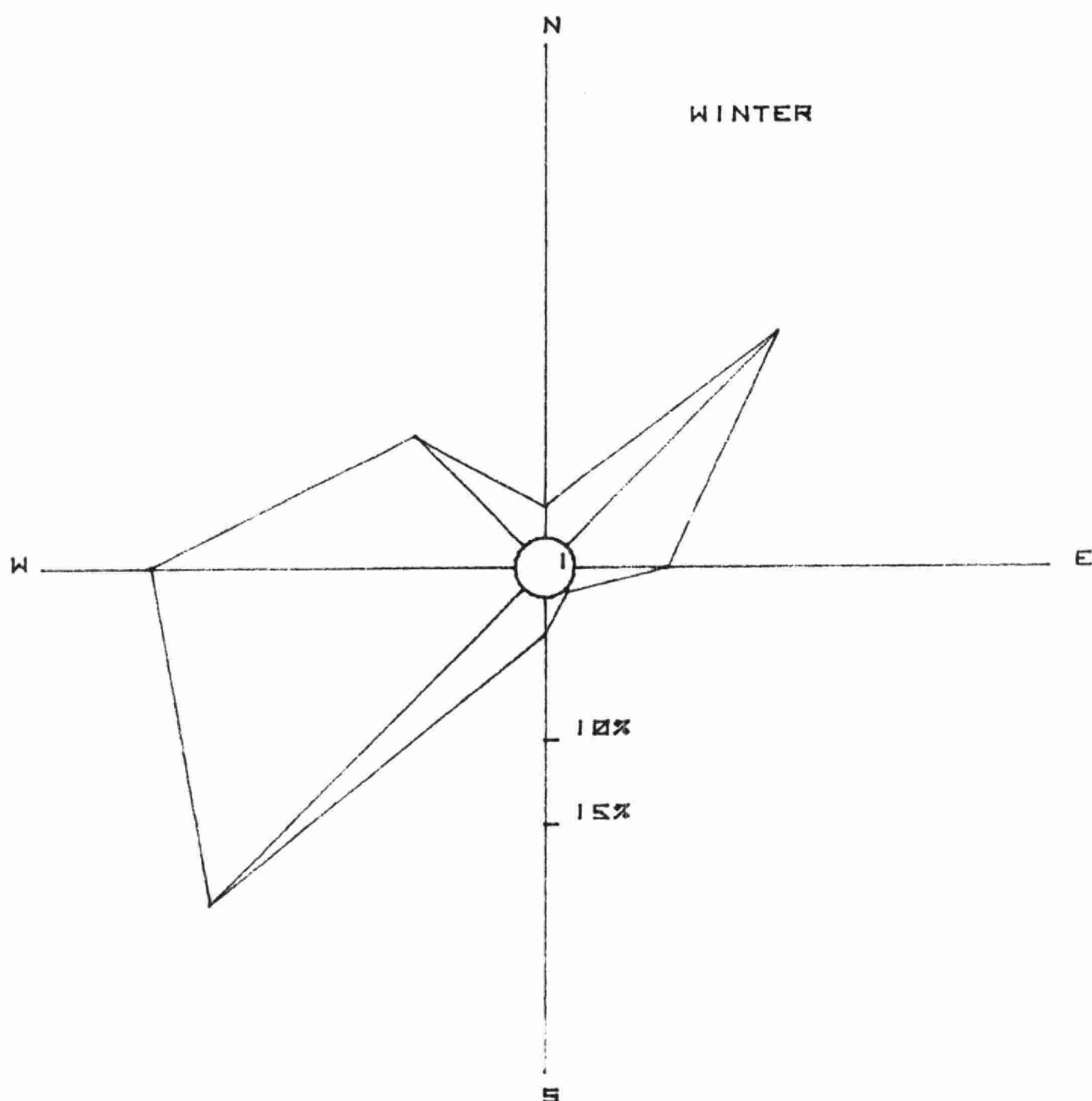
N	NE	E	SE	S	SW	W	NW	CALM
11	5	5	12	12	12	14	24	5



STATION INFORMATION
 LOCATED
 AT 861 WEST SECOND ST
 IN CORNWALL.
 HEIGHT UNDER 23M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
2	14	8	5	13	25	24	7	8

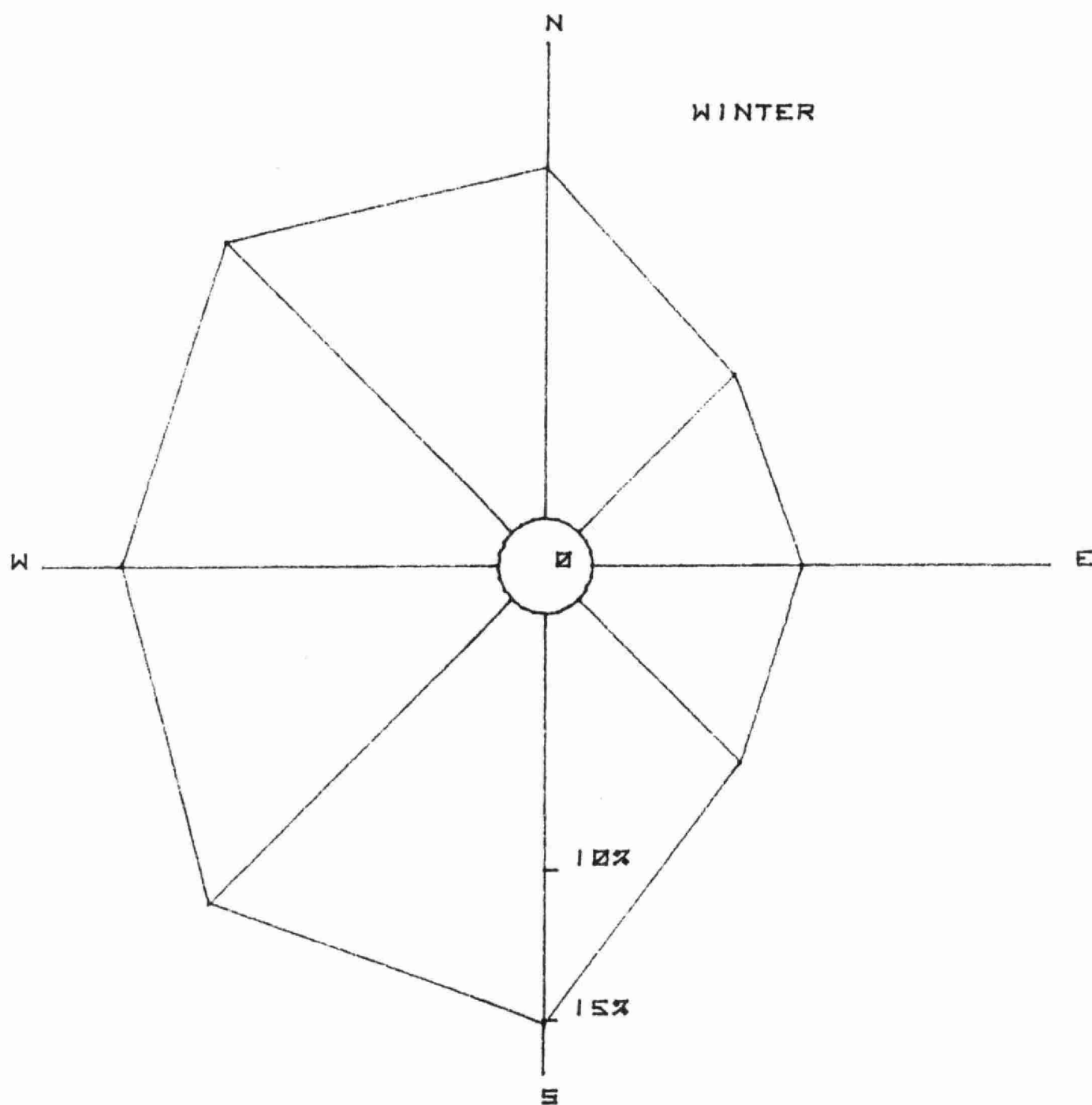


STATION INFORMATION

LOCATED AT TRANSFORMER SITE NW
OF CORNWALL, AREA FLAT, WITH
TOWERS IN ALL DIRECTIONS
HEIGHT 22.5M

PERCENTAGE FREQUENCY

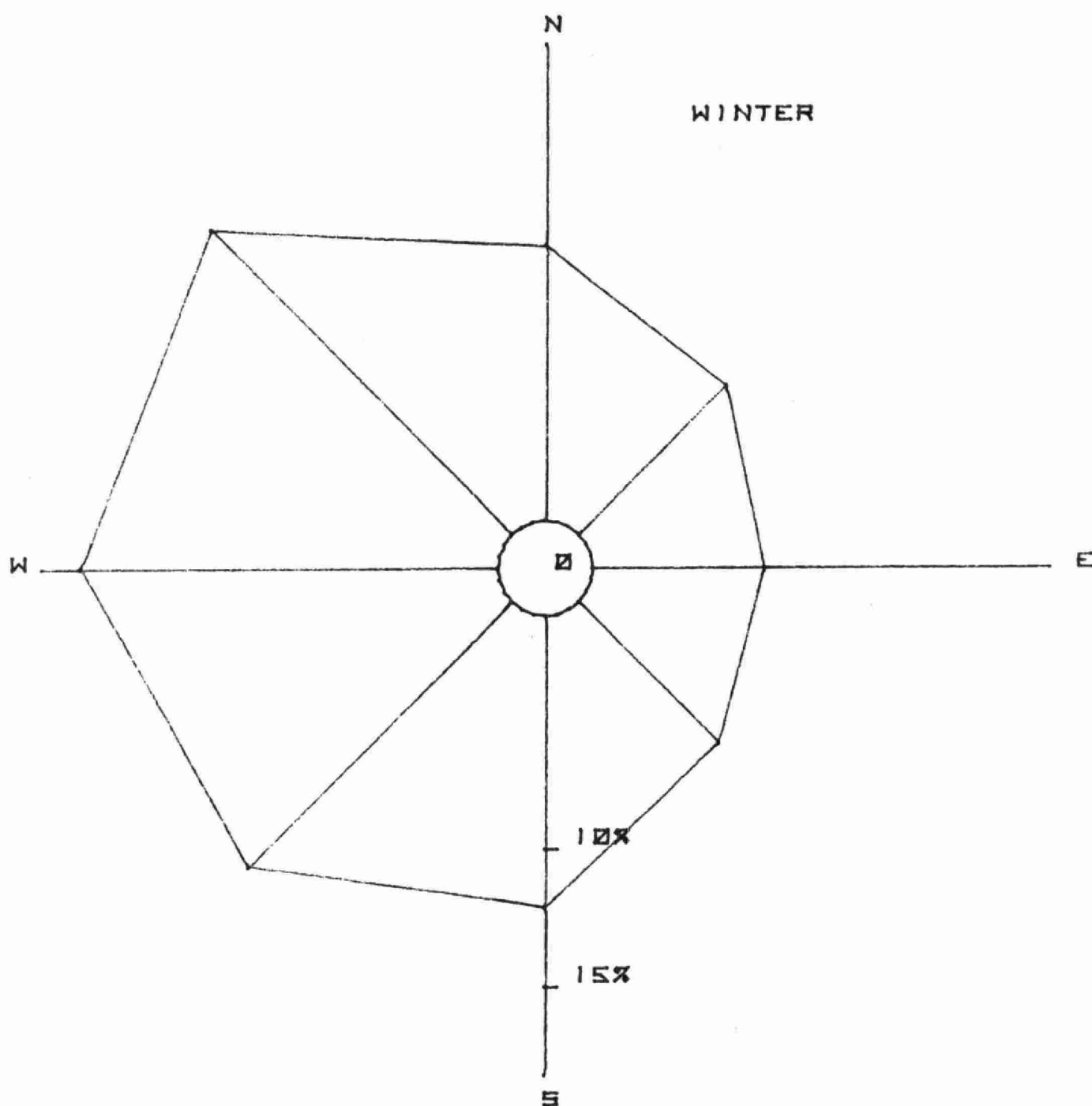
N	NE	E	SE	S	SW	W	NW	CALM
1	20	7	2	1	20	12	11	1



STATION INFORMATION
 LOCATED
 OPPOSITE LAMBTON GS
 HWY 40 COURTRIGHT
 HEIGHT 10.1M

PERCENTAGE FREQUENCY

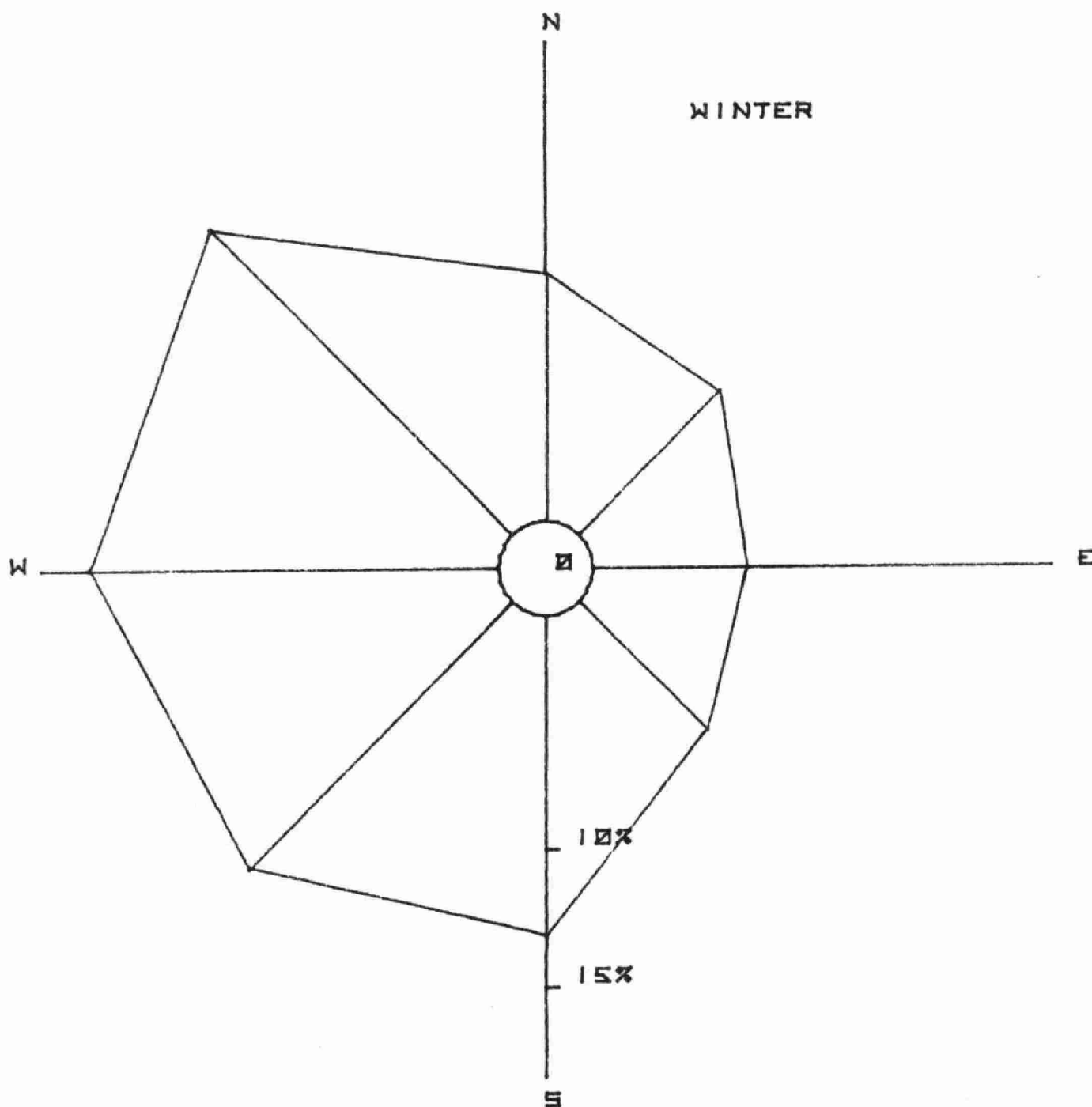
N	NE	E	SE	S	SW	W	NW	CALM
13	8	8	8	15	16	14	15	0



STATION INFORMATION
 LOCATED
 OPPOSITE LAMBTON GS
 HWY 40 COURTRIGHT
 HEIGHT 30.8M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
12	8	8	8	12	15	17	17	0

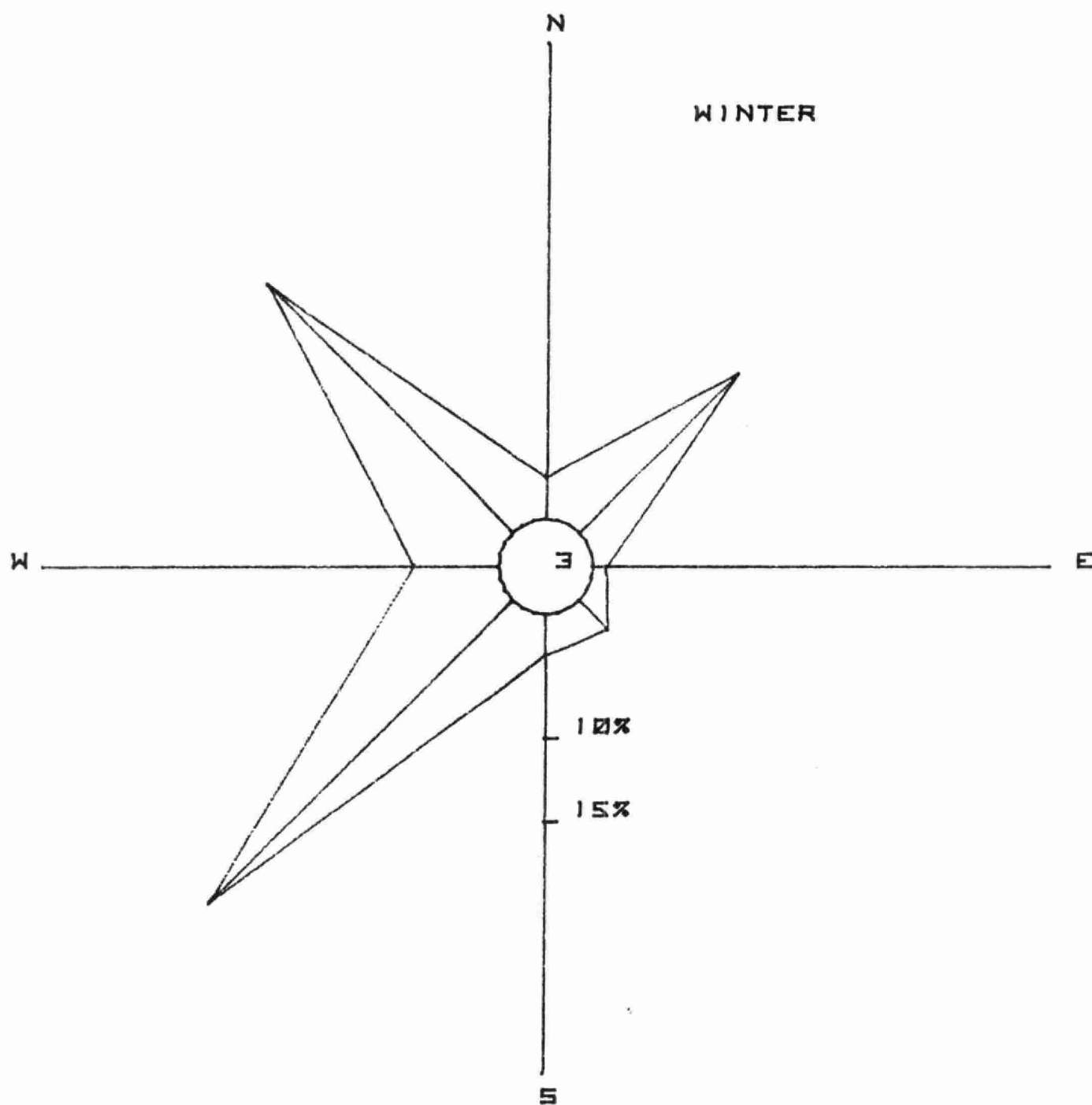


STATION INFORMATION
 LOCATED
 OPPOSITE LAMBTON GS
 HWY 40 COURTRIGHT
 HEIGHT 92.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
11	8	7	8	13	15	17	17	0

No DATA for Winter



STATION INFORMATION

LOCATED AT EXPERIMENTAL FARM, AREA FLAT,
 ROLLING LAND IN DISTANCE WITH TREES 4-5M
 TALL 84M AWAY, NEAREST BLDG 64M
 HEIGHT 9.9M

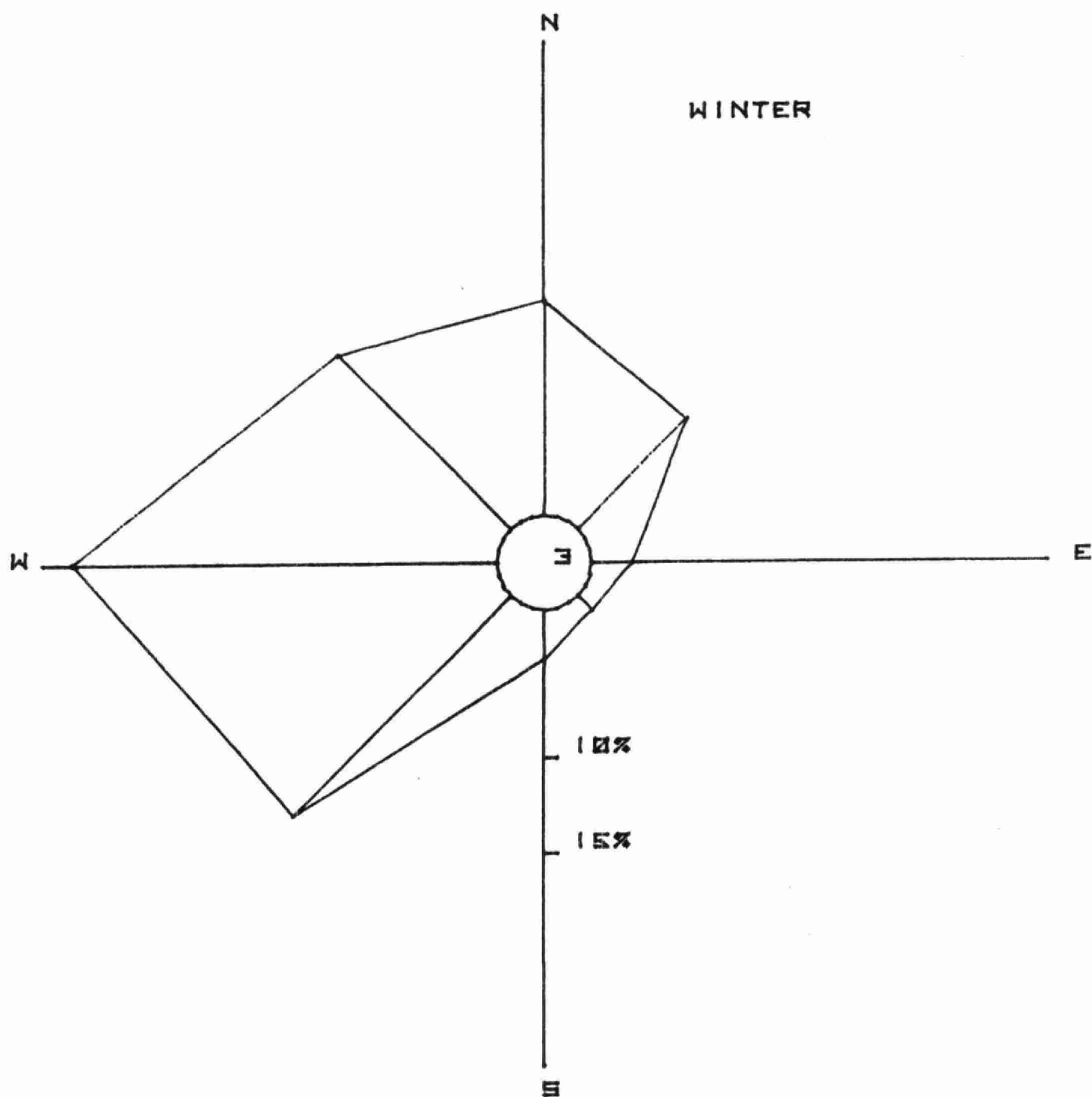
PERCENTAGE FREQUENCY

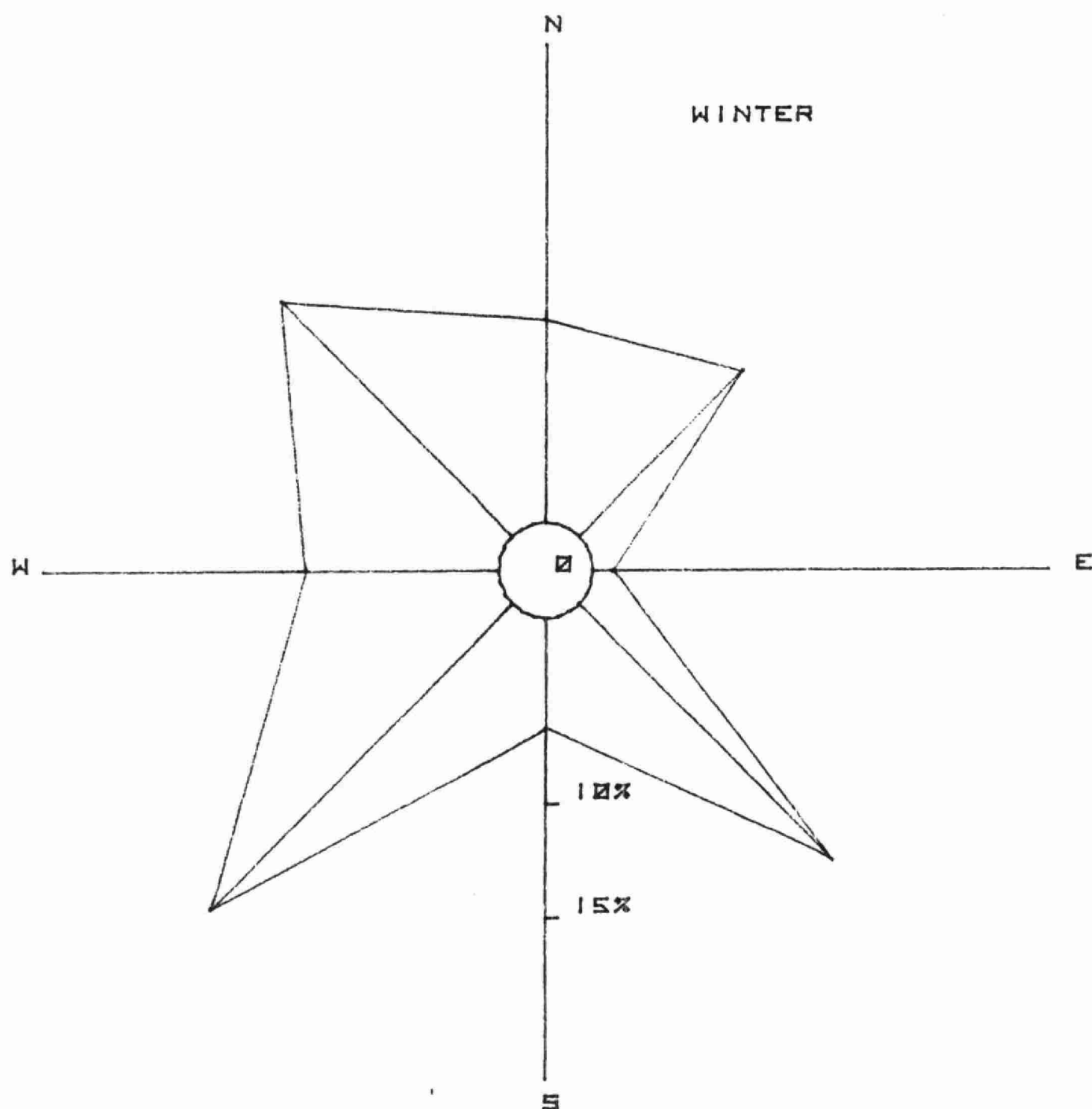
N	NE	E	SE	S	SW	W	NW	CALM
0	10	1	0	0	0	0	1	0

DELHI (RES) 1959-1972

(BIASES REMOVED)

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STATION INFORMATION

LOCATED 12M E LAKE SHORE IN FLAT HEAVILY
 WOODED AREA. S WINDS AFFECTED BY WOODS AND
 NE WINDS BY POWER PLANT
 HEIGHT 13.2M

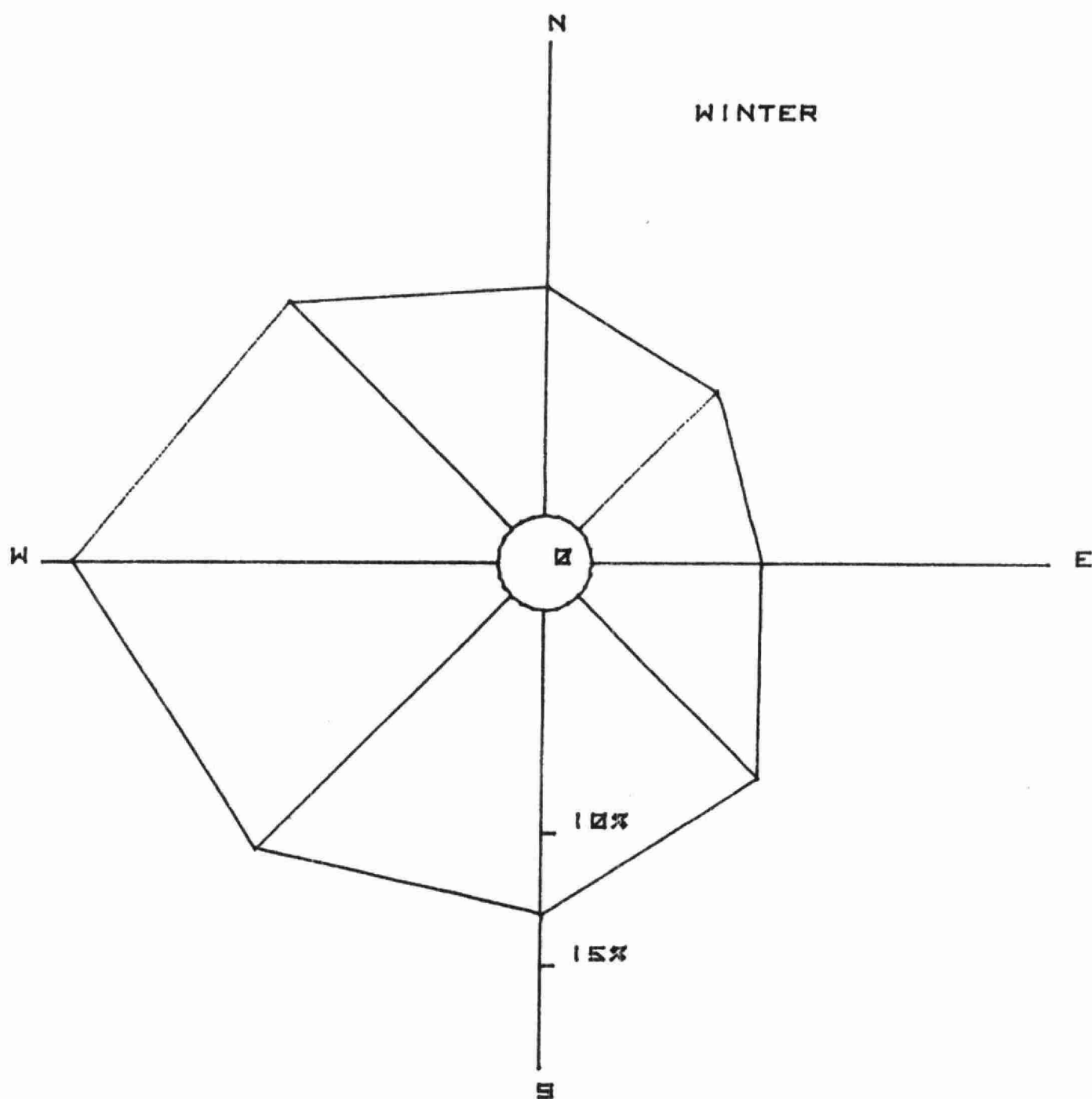
PERCENTAGE FREQUENCY

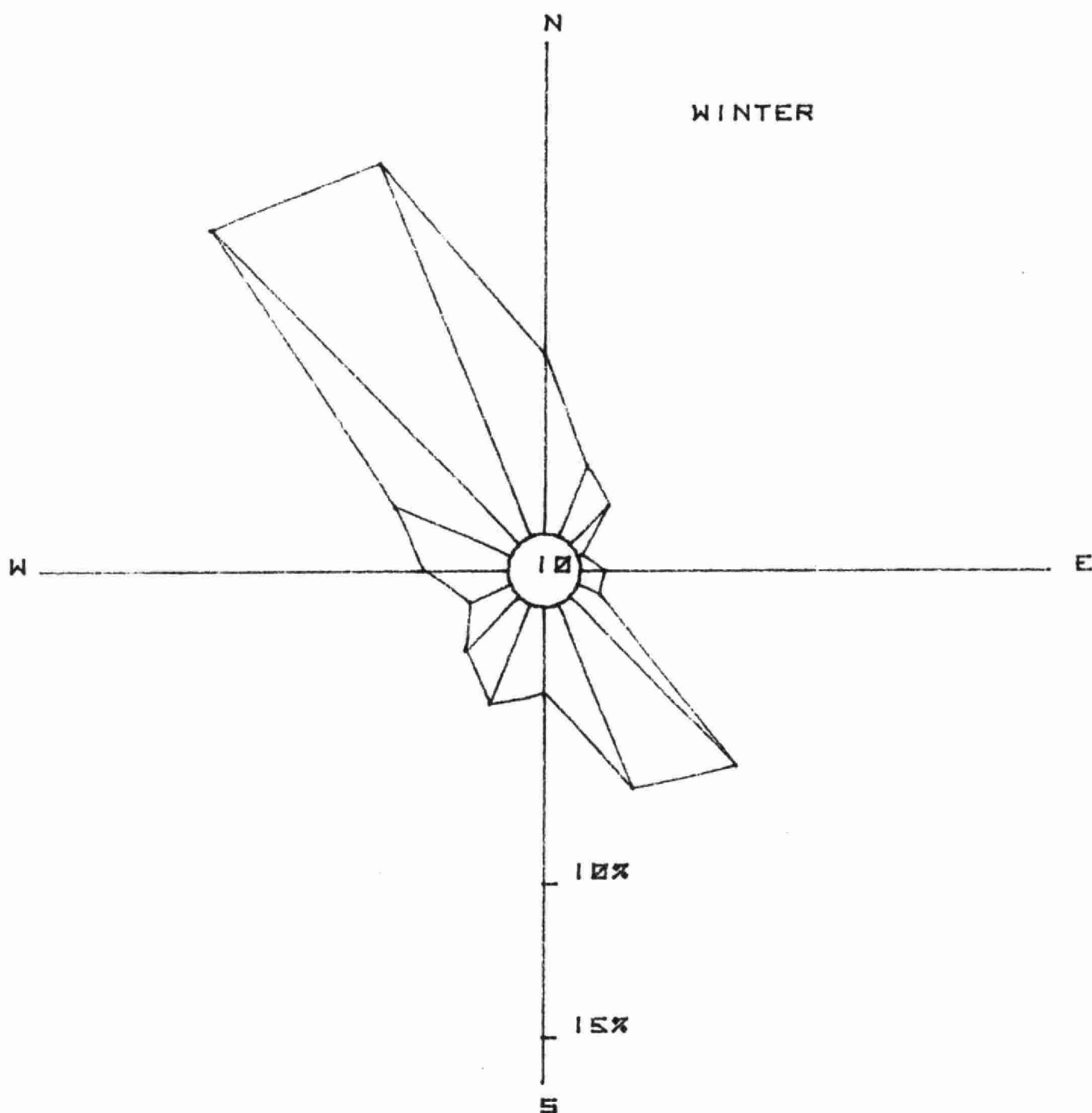
N	NE	E	SE	S	SW	W	NW	CALM
11	12	3	18	7	21	11	17	0

DOUGLAS POINT (AES) 1965-1971

(BIASES REMOVED)

19



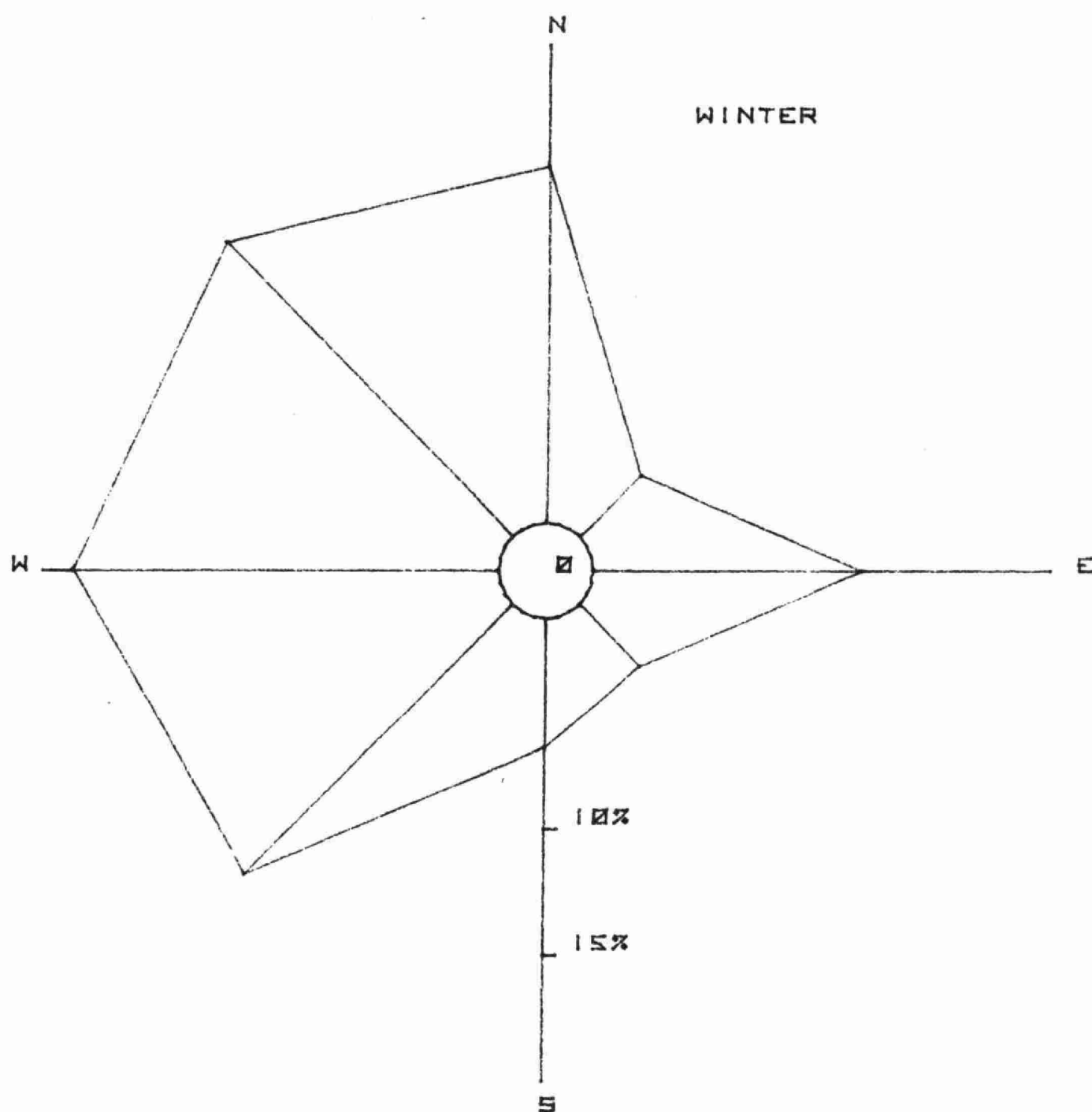


STATION INFORMATION

LOCATED AT AIRPORT 3.1KM
SW OF RAILWAY STN AND VILLAGE,
AREA FLAT AND CLEAR OF BUSH
HEIGHT 19.7M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
7	4	3	1	2	2	8	8	4	5	4	3	4	5	16	14	10

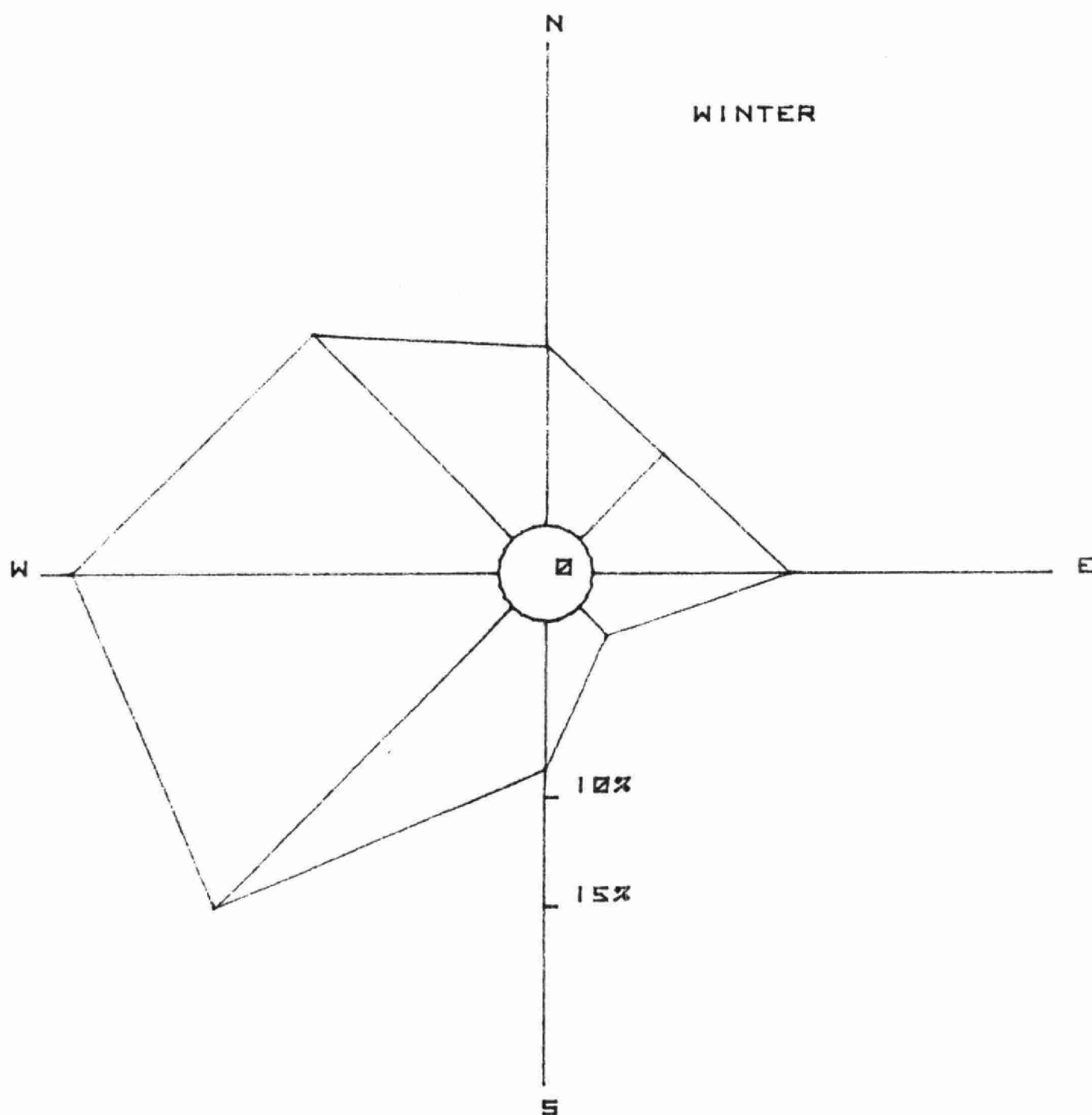


STATION INFORMATION

LOCATED
 AT EVANS/ARNOLD STEETS
 IN ETOBICOKE
 HEIGHT 10.1M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
16	5	13	5	7	17	19	18	0

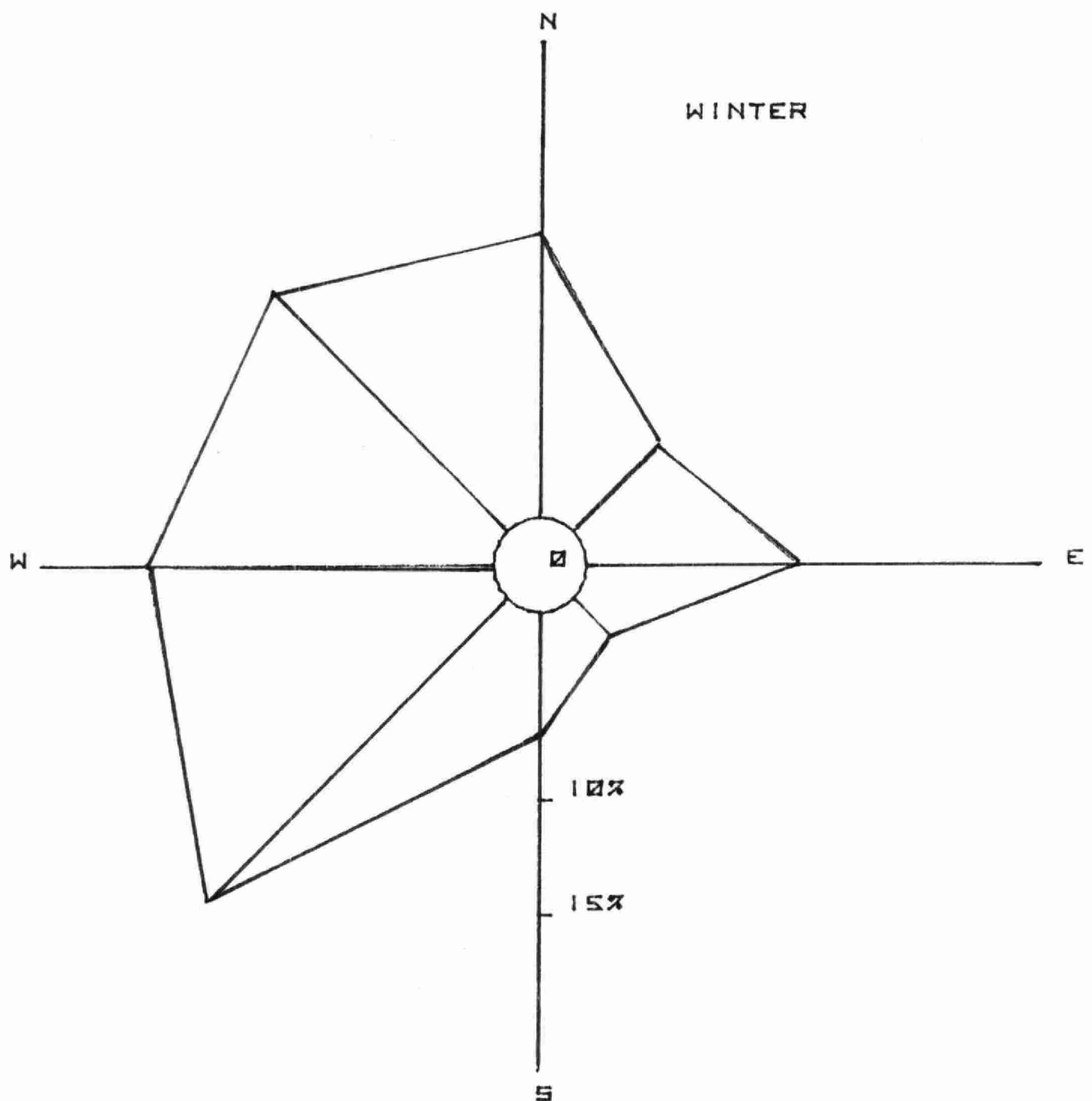


STATION INFORMATION

LOCATED
 AT EVANS/ARNOLD STREETS
 IN ETOBICOKE
 HEIGHT 30.8M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	8	11	4	8	22	22	15	0

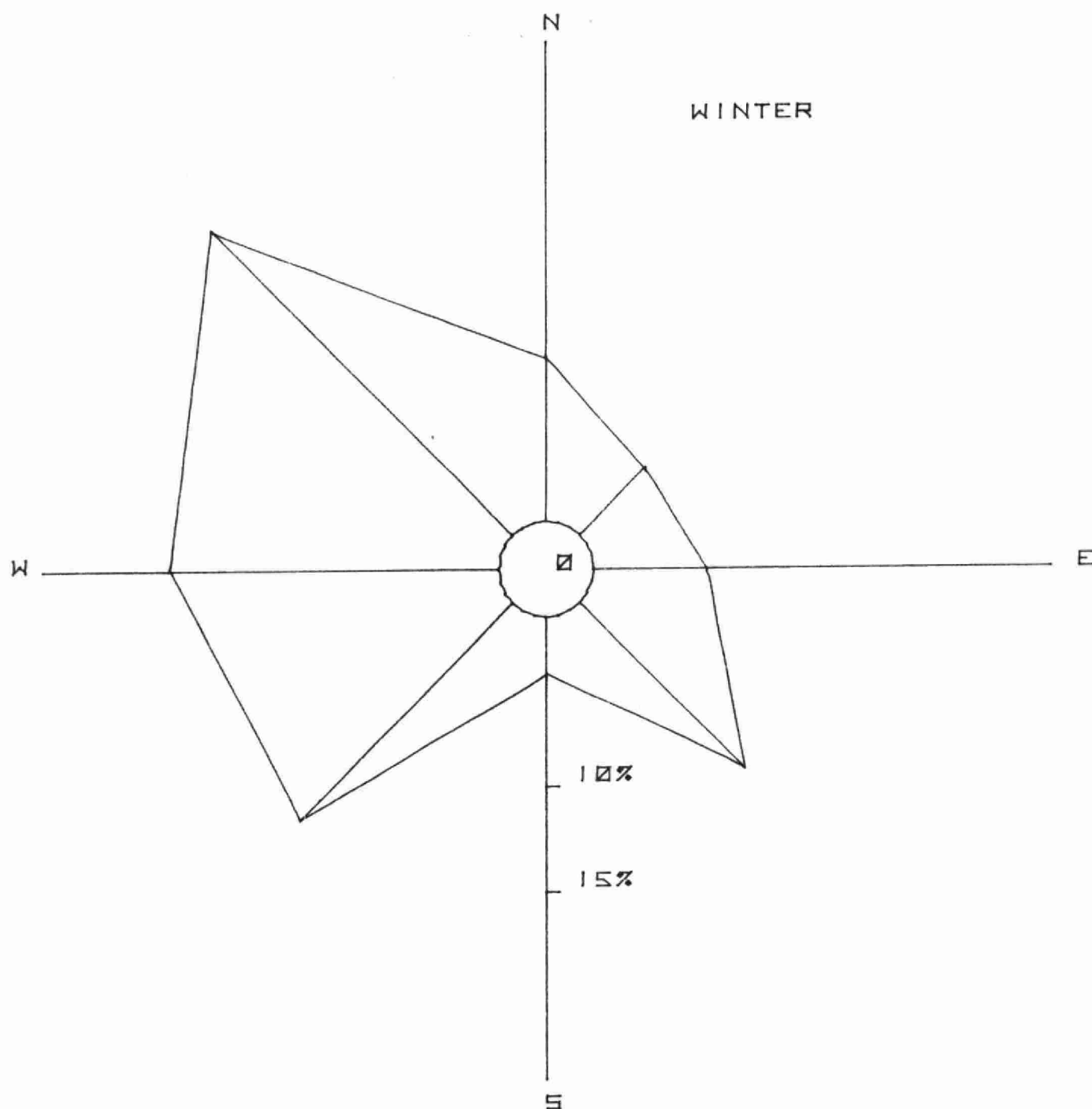


STATION INFORMATION

LOCATED
 AT EVANS/ARNOLD STREETS
 IN ETOBICOKE
 HEIGHT 92.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
14	7	11	4	7	21	17	17	0

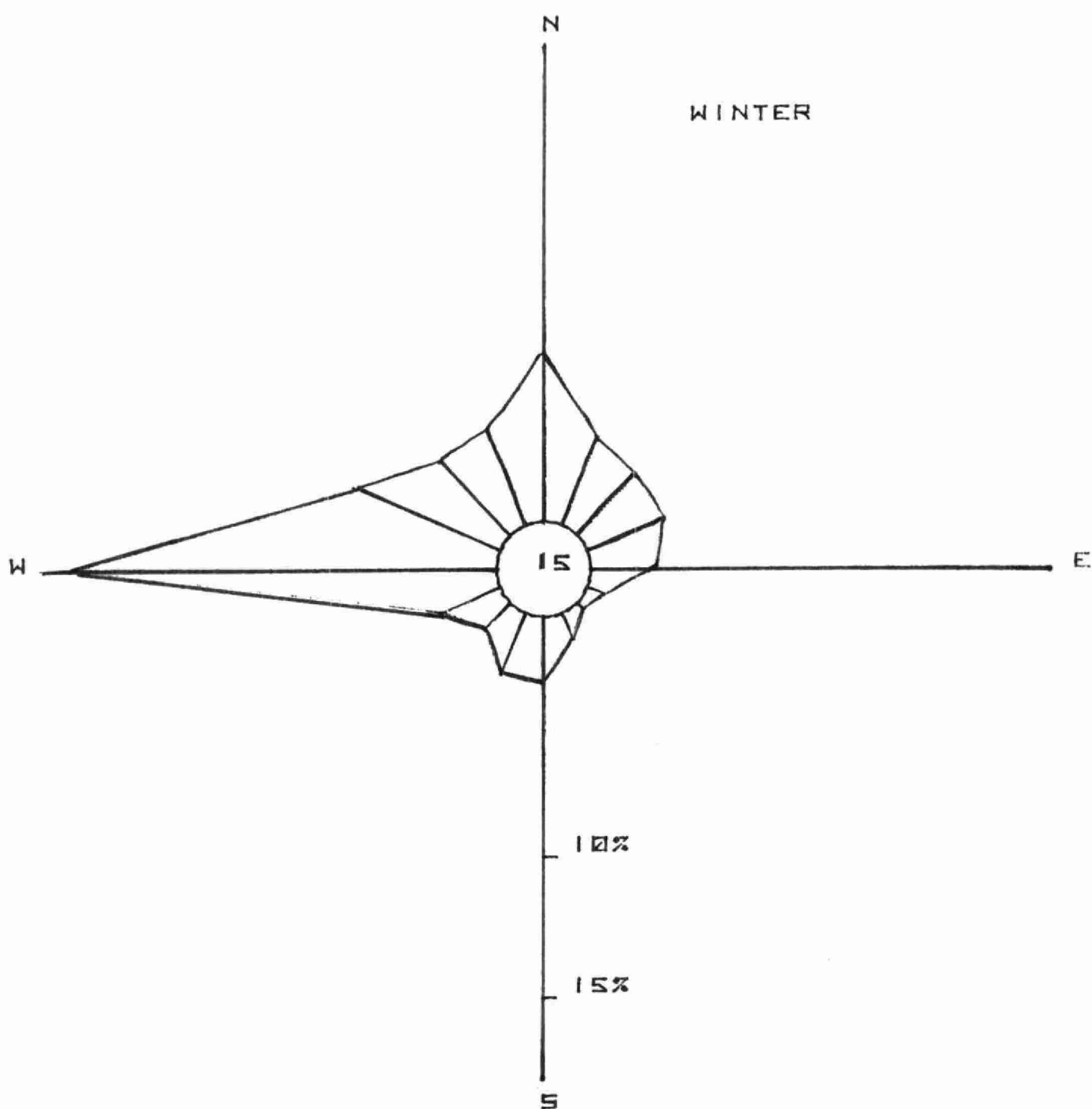


STATION INFORMATION

LOCATED IN ROLLING PARTLY WOODED AREA WITH
ELM TREES 18.5-21.5M HIGH TO N. NW WINDS
EFFECT STN. CAUSING TURBLANCE
HEIGHT 13.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	7	8	13	5	17	18	23	0

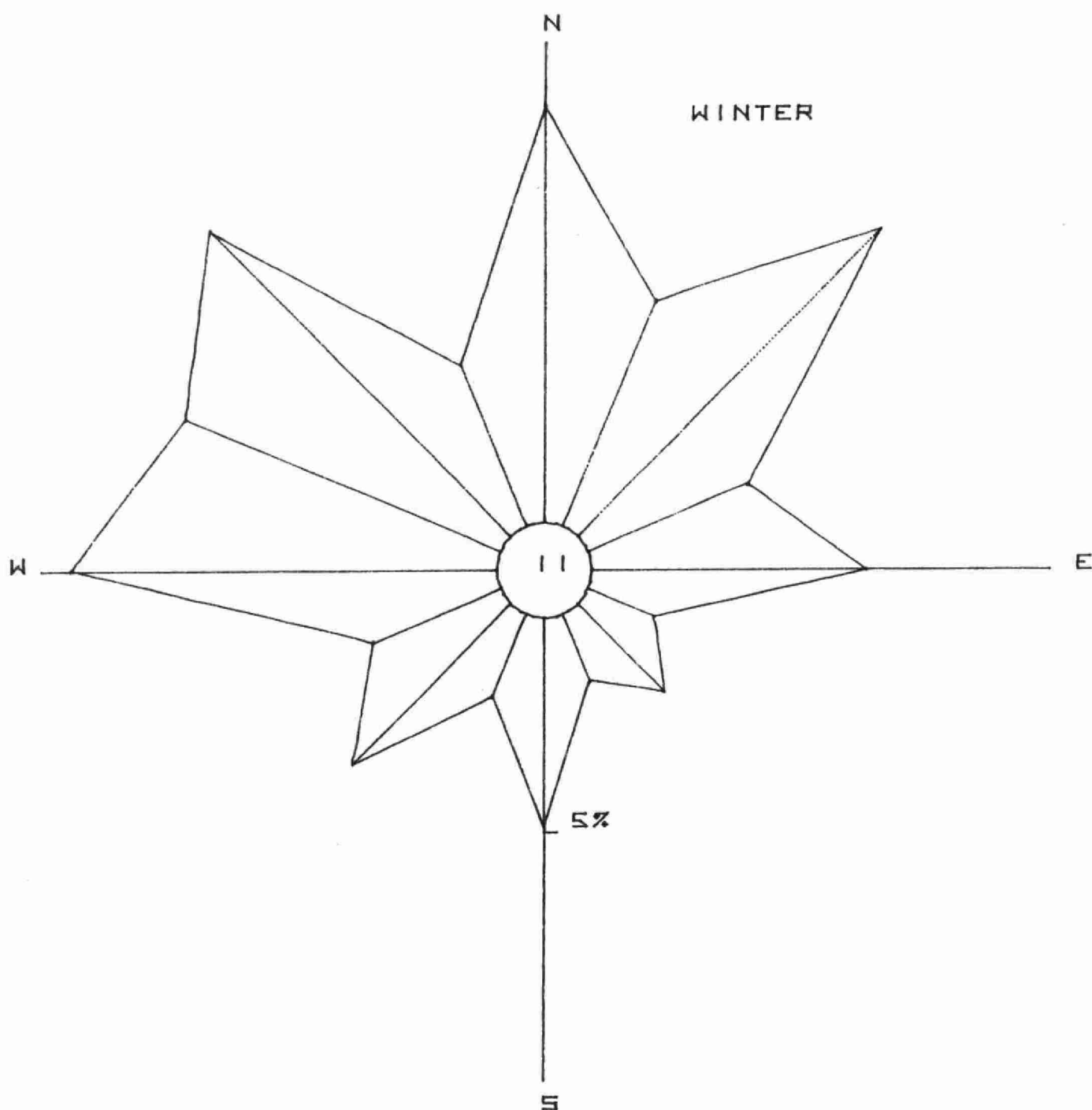


STATION INFORMATION

LOCATED S EDGE TOWN ON W SIDE OF ROAD
 OUT OF TOWN TO HWY 11. AREA IS
 FLAT WITH NUMEROUS LAKES
 HEIGHT 12.6M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
6	5	5	5	4	2	2	3	4	4	3	4	17	7	5	5	15



STATION INFORMATION

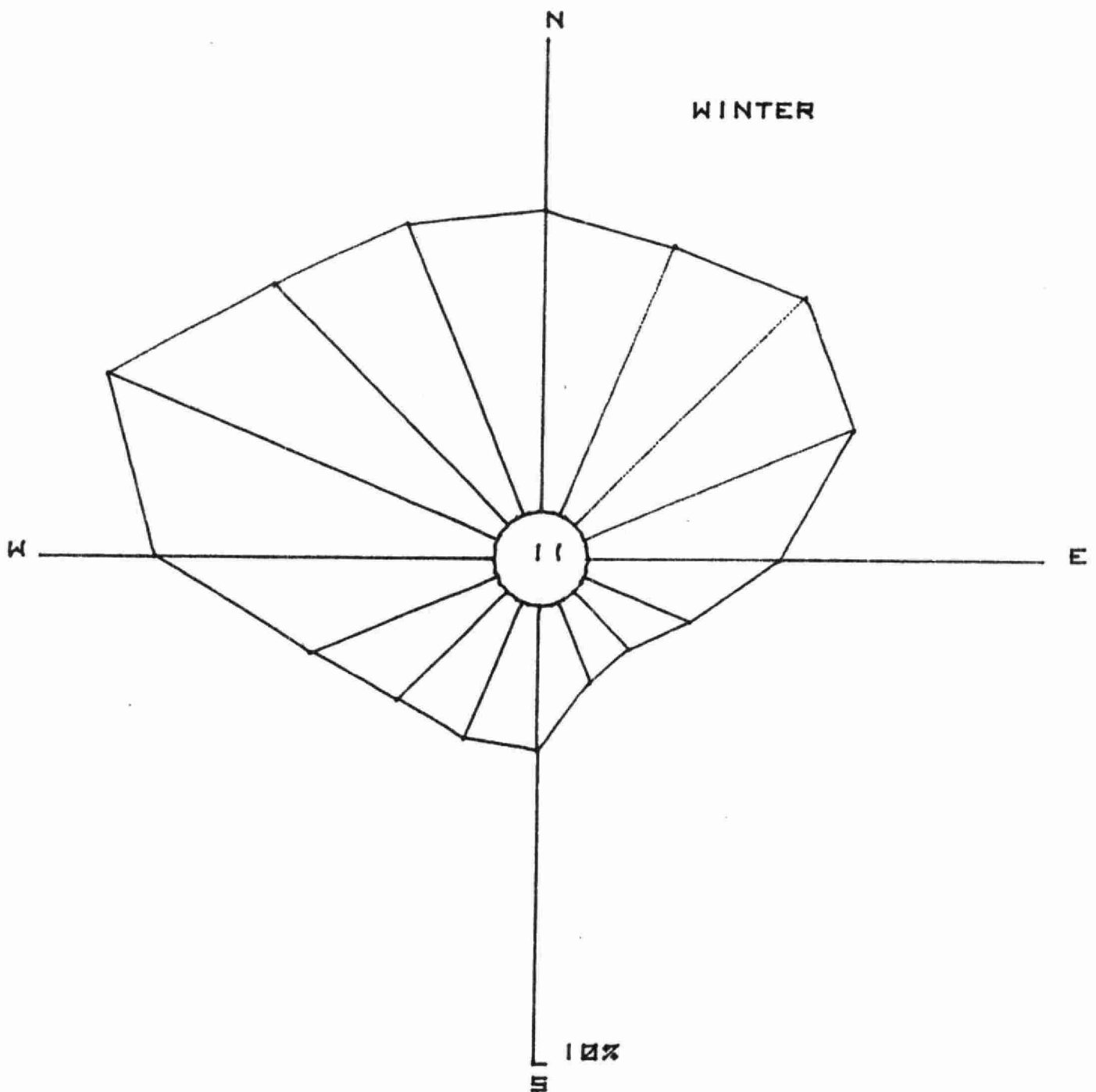
LOCATED 1.2KM TO N AND E IN FLAT AREA,
 ANEMOMETER TOWER IS 3.8M S OF OPS BLDG,
 BASE OF TOWER 6.2M ABOVE GROUND.
 HEIGHT 9.8M

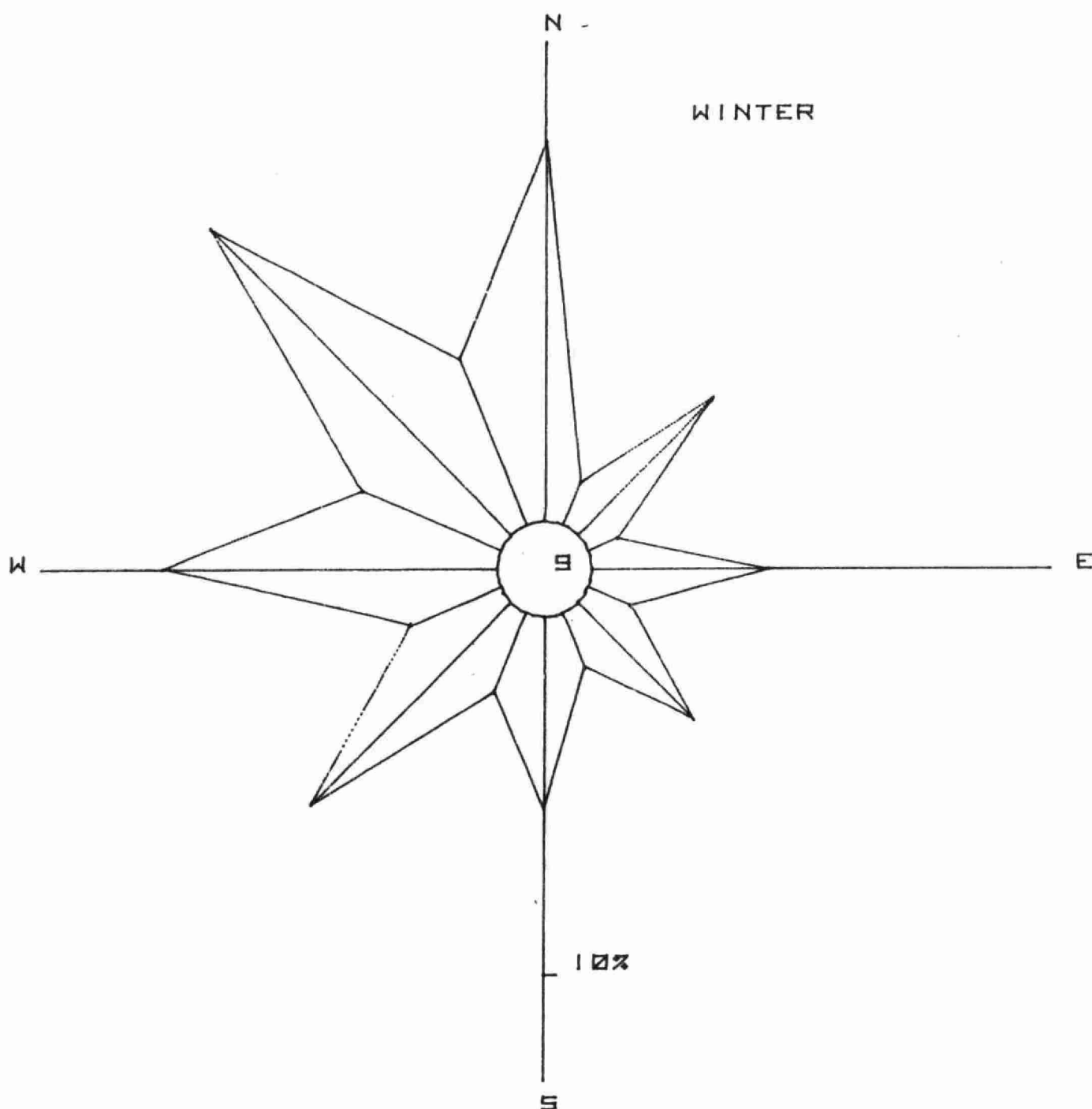
PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
8	6	8	4	6	2	3	2	5	3	5	4	8	8	8	4	11

GORE BAY (AES) 1955-1972
(BIASES REMOVED)

26





STATION INFORMATION

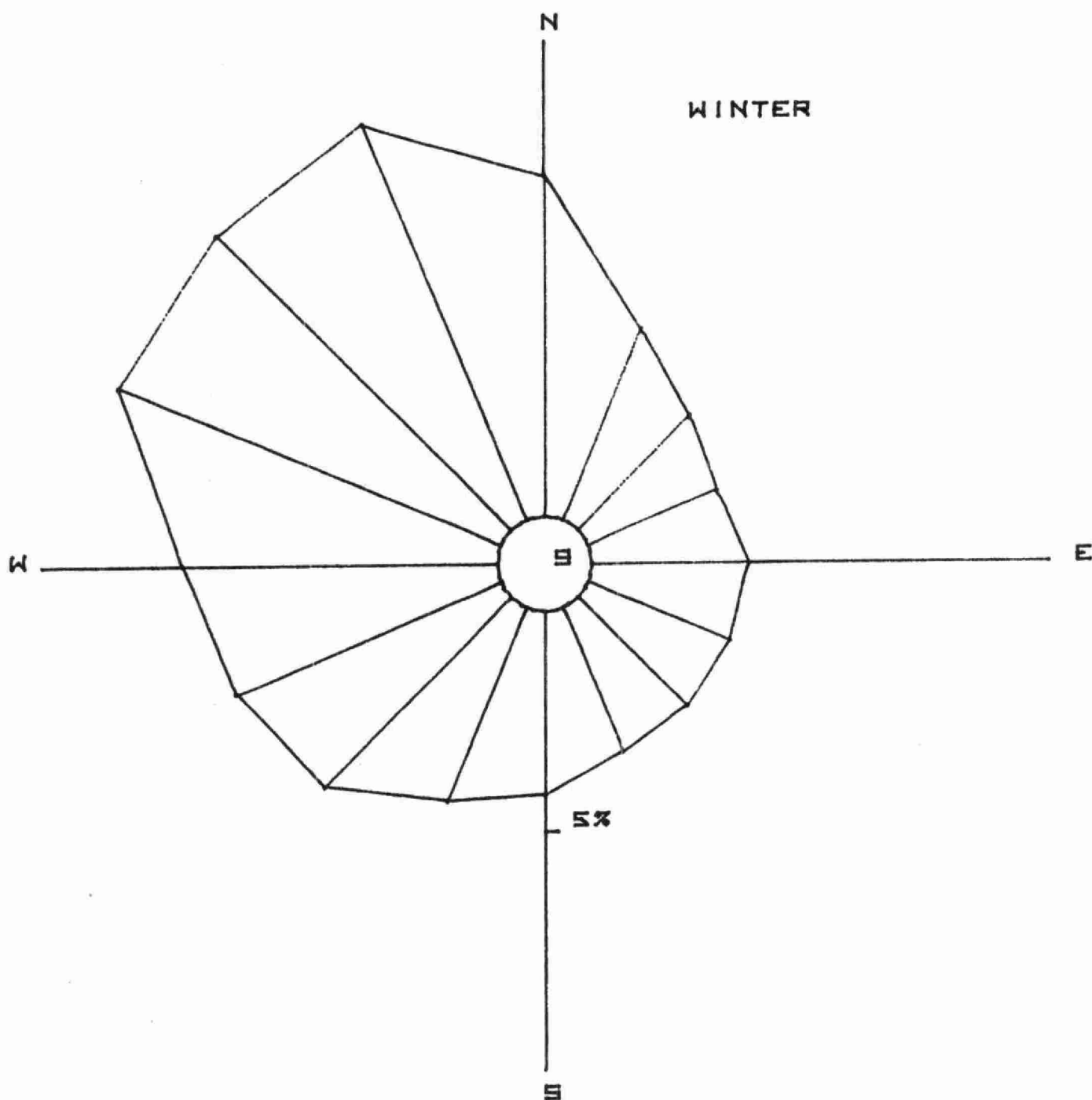
LOCATED 3.2KM NW OF VILLAGE IN WOODED
 AREA WITH LOW ROLLING HILLS AND MANY
 SMALL LAKES.
 HEIGHT. 16M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
1	2	6	2	6	2	5	3	6	3	8	4	10	5	12	6	9

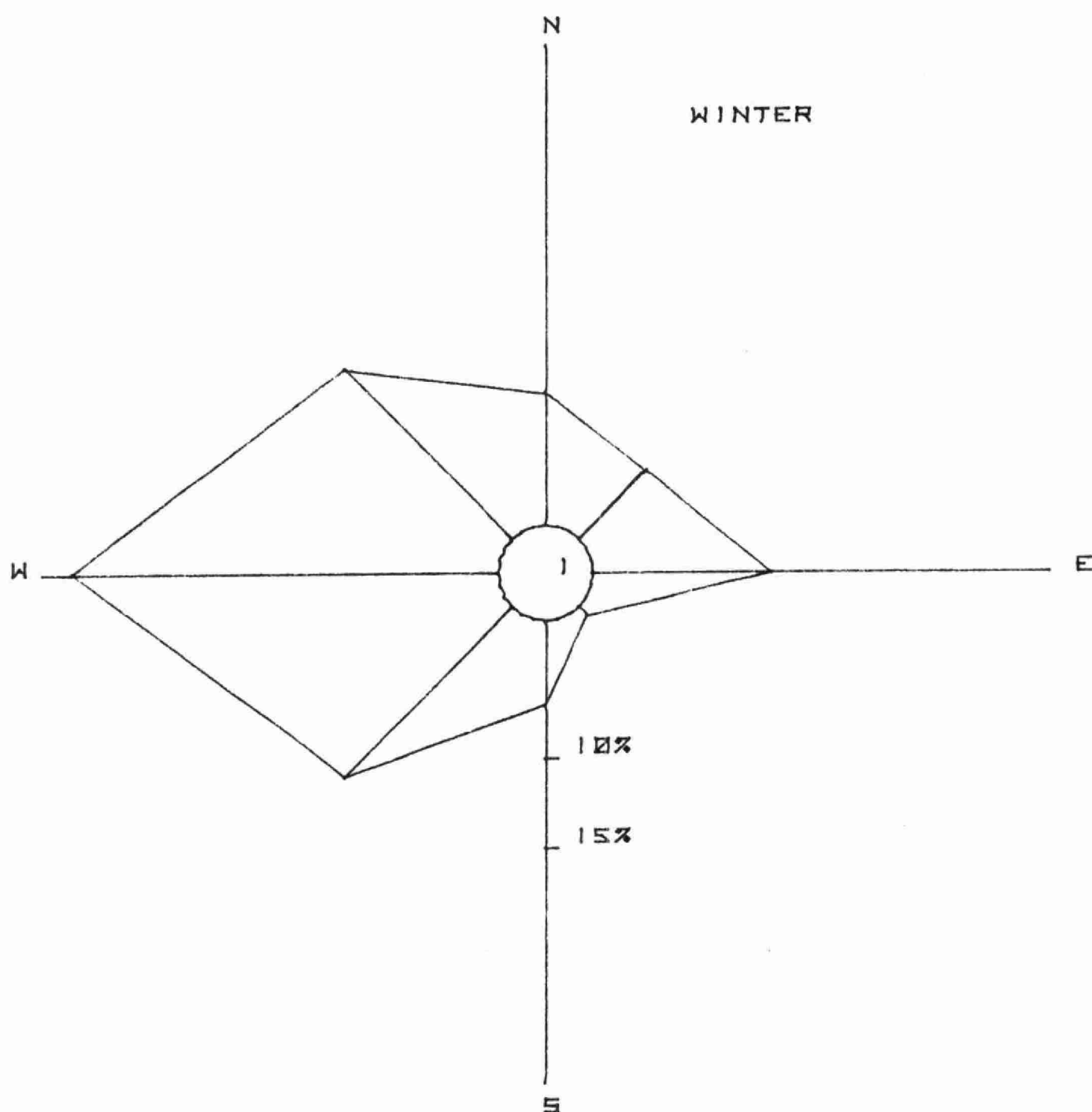
GRAHAM (A) (AES) 1955-1967
(BIASES REMOVED)

27



GREAT DUCK ISLAND

No DATA for Winter

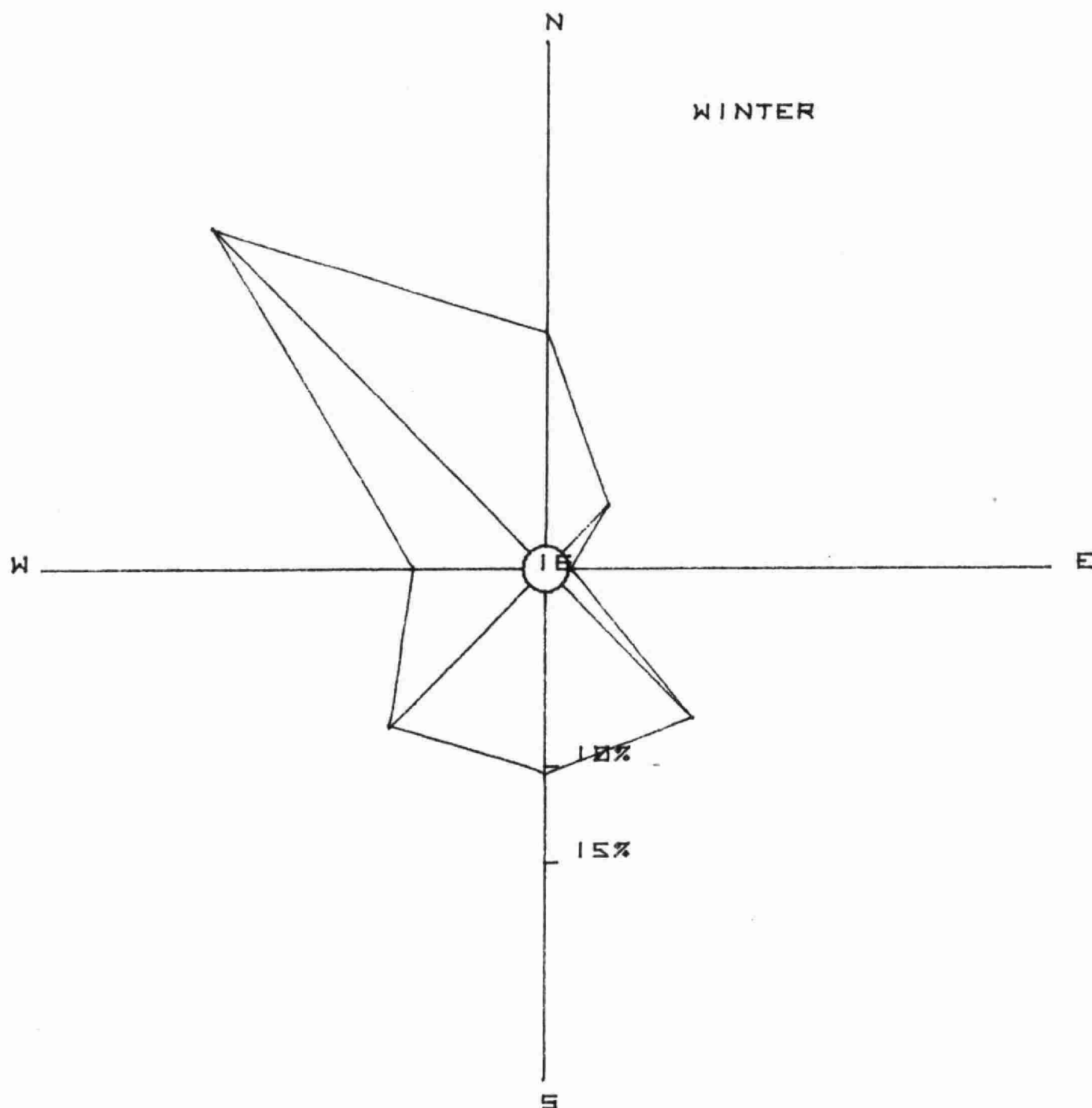


STATION INFORMATION

LOCATED AT DAC AREA FLAT SURROUNDED BY
TEST PLOTS FOR VARIOUS CROPS, COUNTRYSIDE IS
ROLLING FARM LAND.
HEIGHT 10M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	8	13	3	7	16	27	16	1

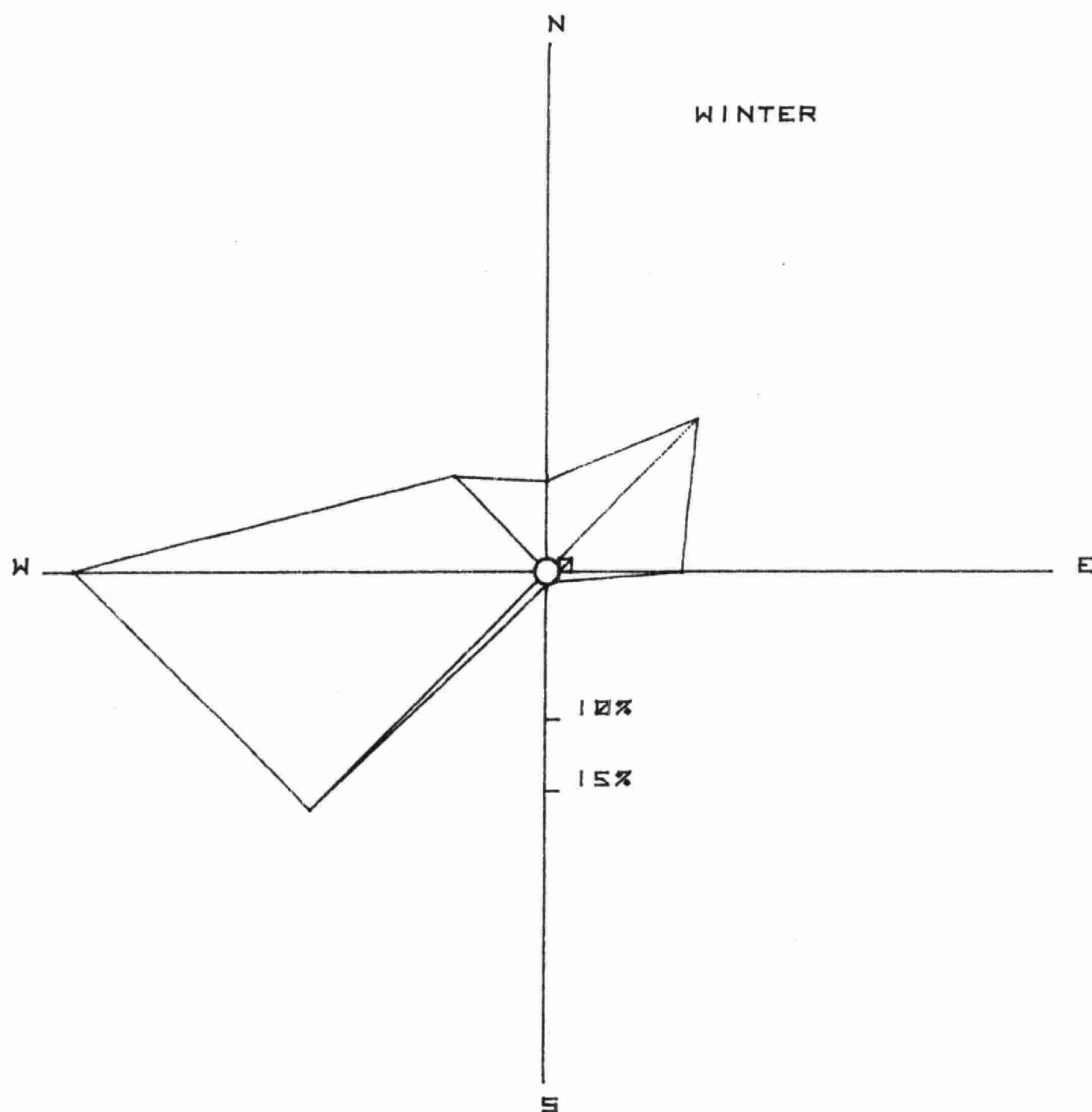


STATION INFORMATION

LOCATED WAS IN TOWN ON W SIDE OF LAKE
TEMISKAMING WITH GRADUAL UPSLOPE W AWAY
FROM LAKE.
HEIGHT 12.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
12	5	1	11	11	12	7	25	16

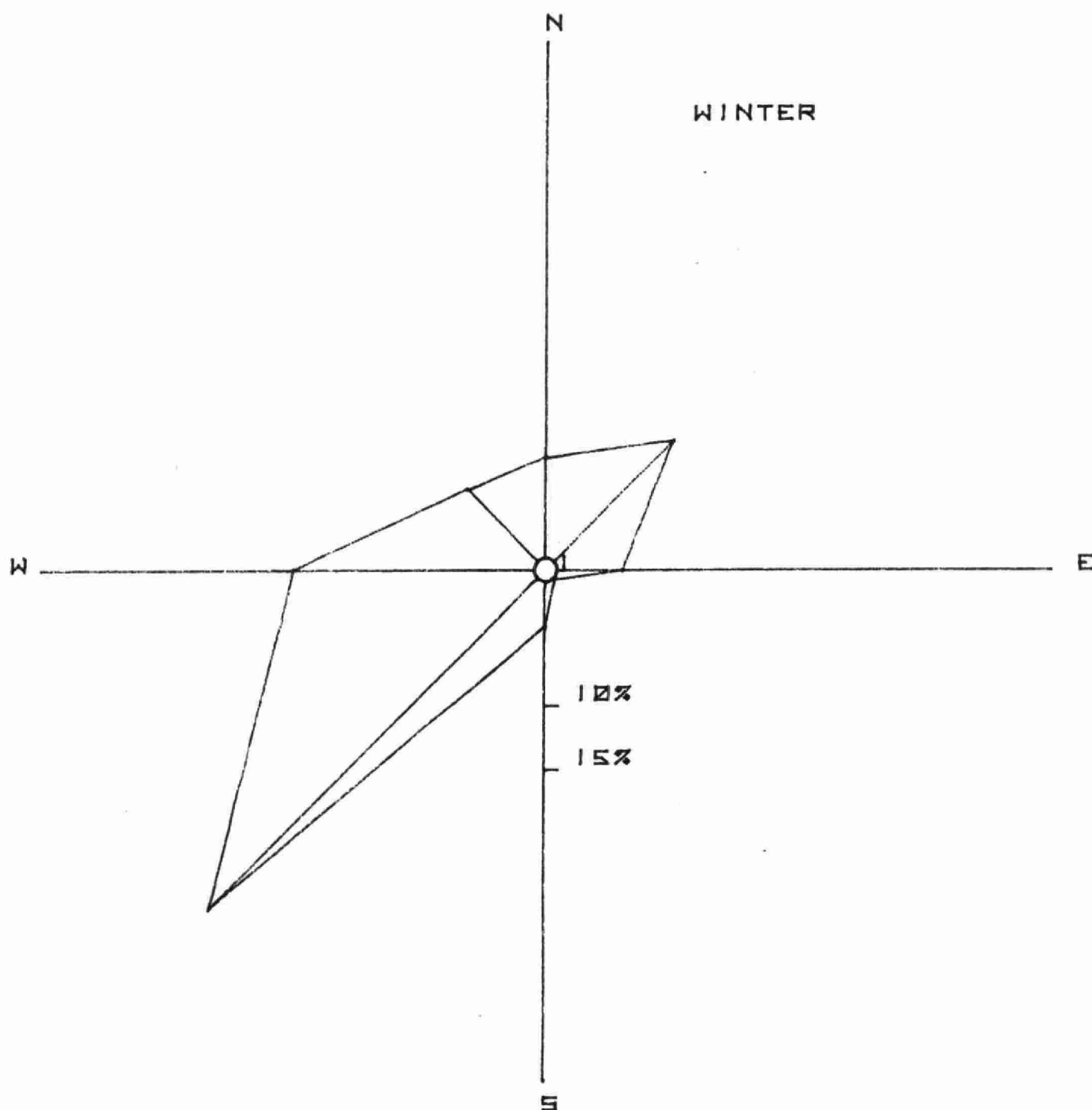


STATION INFORMATION

LOCATED ON PIPE MAST ATOP POLICE BLDG.
 AT DOCK ON S SIDE AT W END OF HARBOUR.
 LAKE ONTARIO 5KM E/ESCARPMENT 3.2KM S.
 HEIGHT 15.7M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
9	15	10	1	1	24	34	9	0

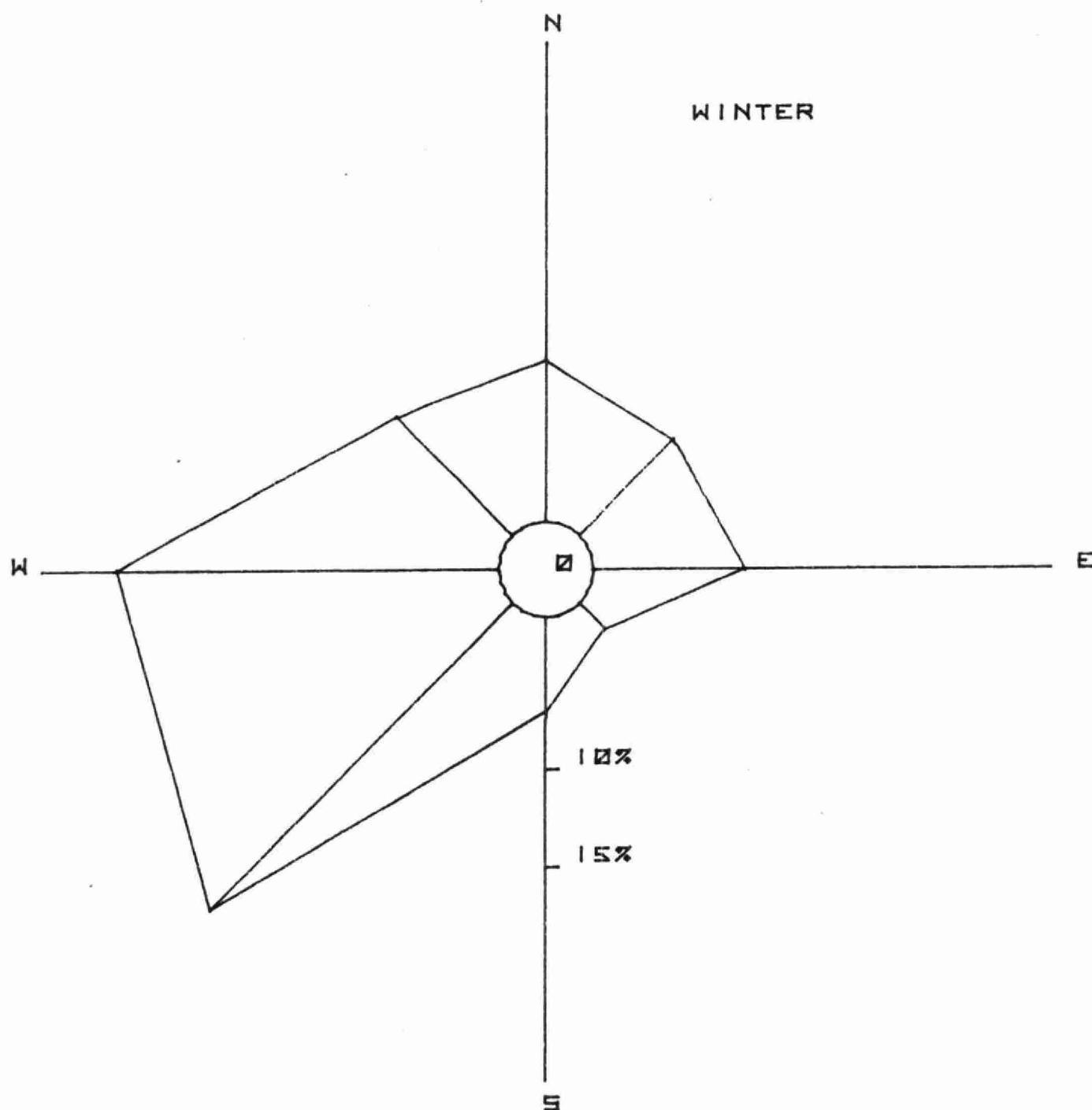


STATION INFORMATION

LOCATED ROYAL BOTANICAL GARDENS ADMIN
BLDG W END AND .4KM N OF HARBOUR,
AREA FLAT.
HEIGHT 17.7M

PERCENTAGE FREQUENCY

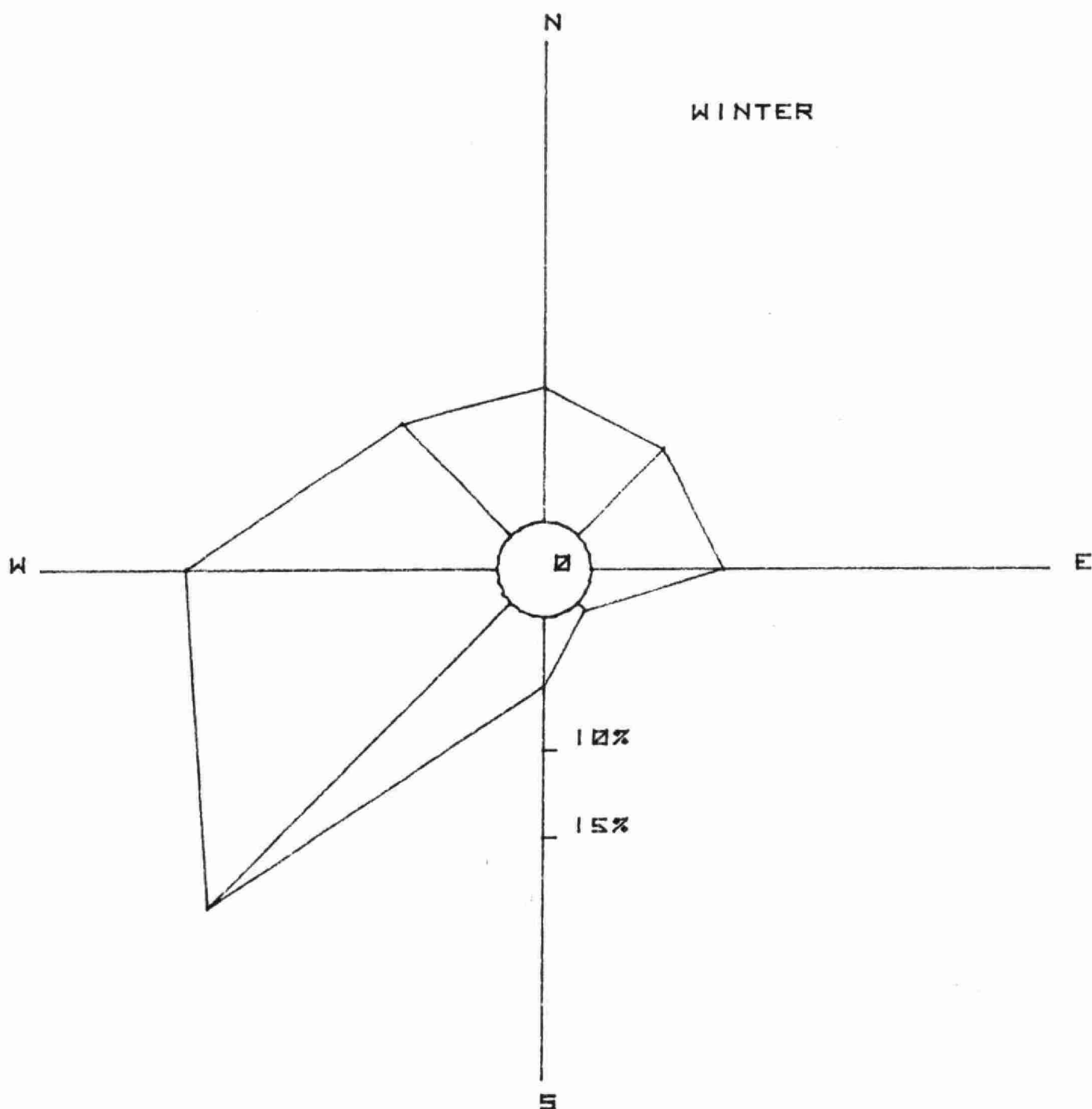
N	NE	E	SE	S	SW	W	NW	CALM
0	14	0	1	4	17	20	5	1



STATION INFORMATION
 LOCATED
 AT BRAMPTON/WOODWARD
 HAMILTON
 HEIGHT 10.1M

PERCENTAGE FREQUENCY

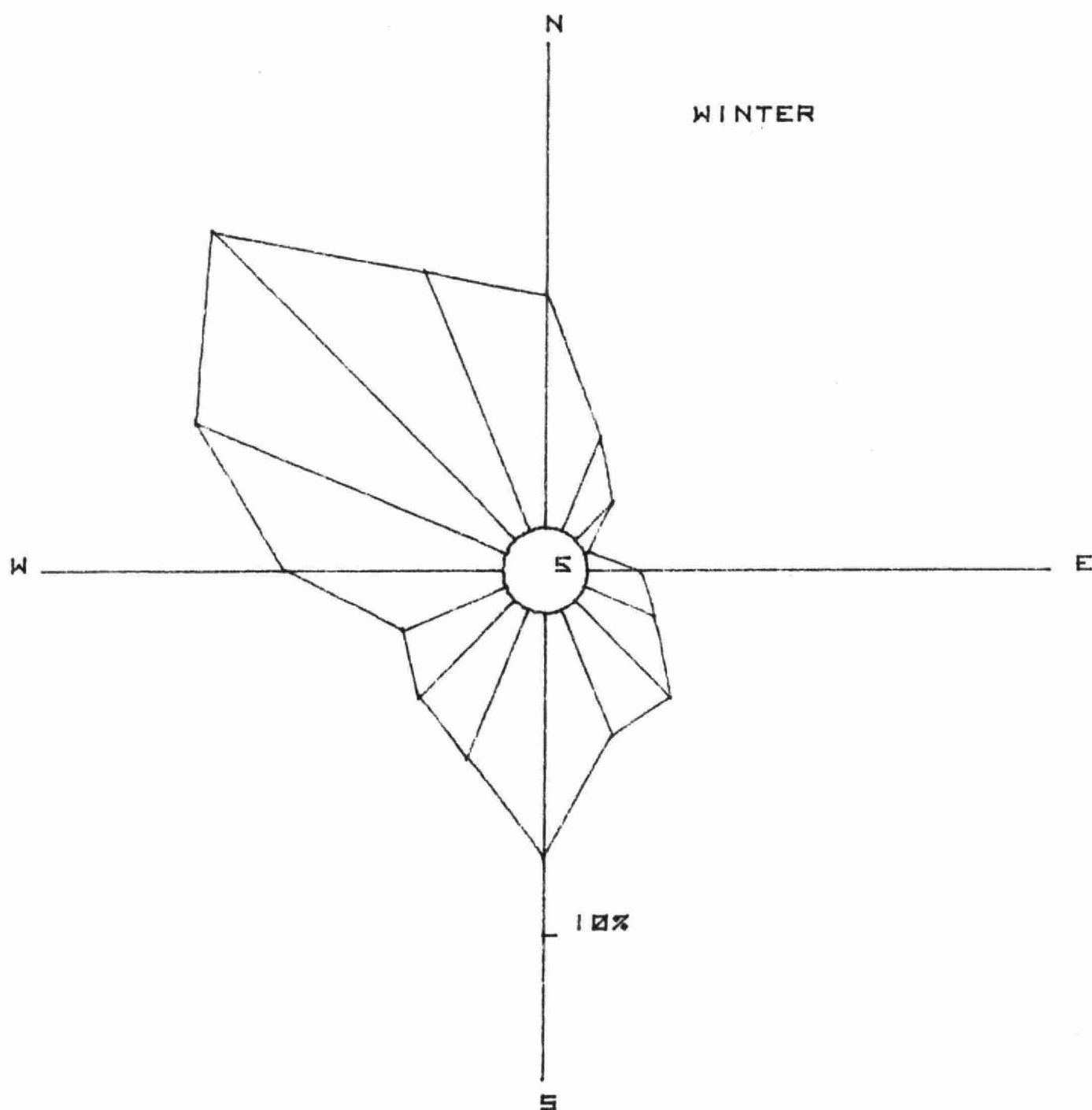
N	NE	E	SE	S	SW	W	NW	CALM
11	9	10	4	7	25	22	11	0



STATION INFORMATION
LOCATED
AT BRAMPTON/WOODWARD
HAMILTON
HEIGHT 61.6M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	10	10	3	7	27	21	12	0

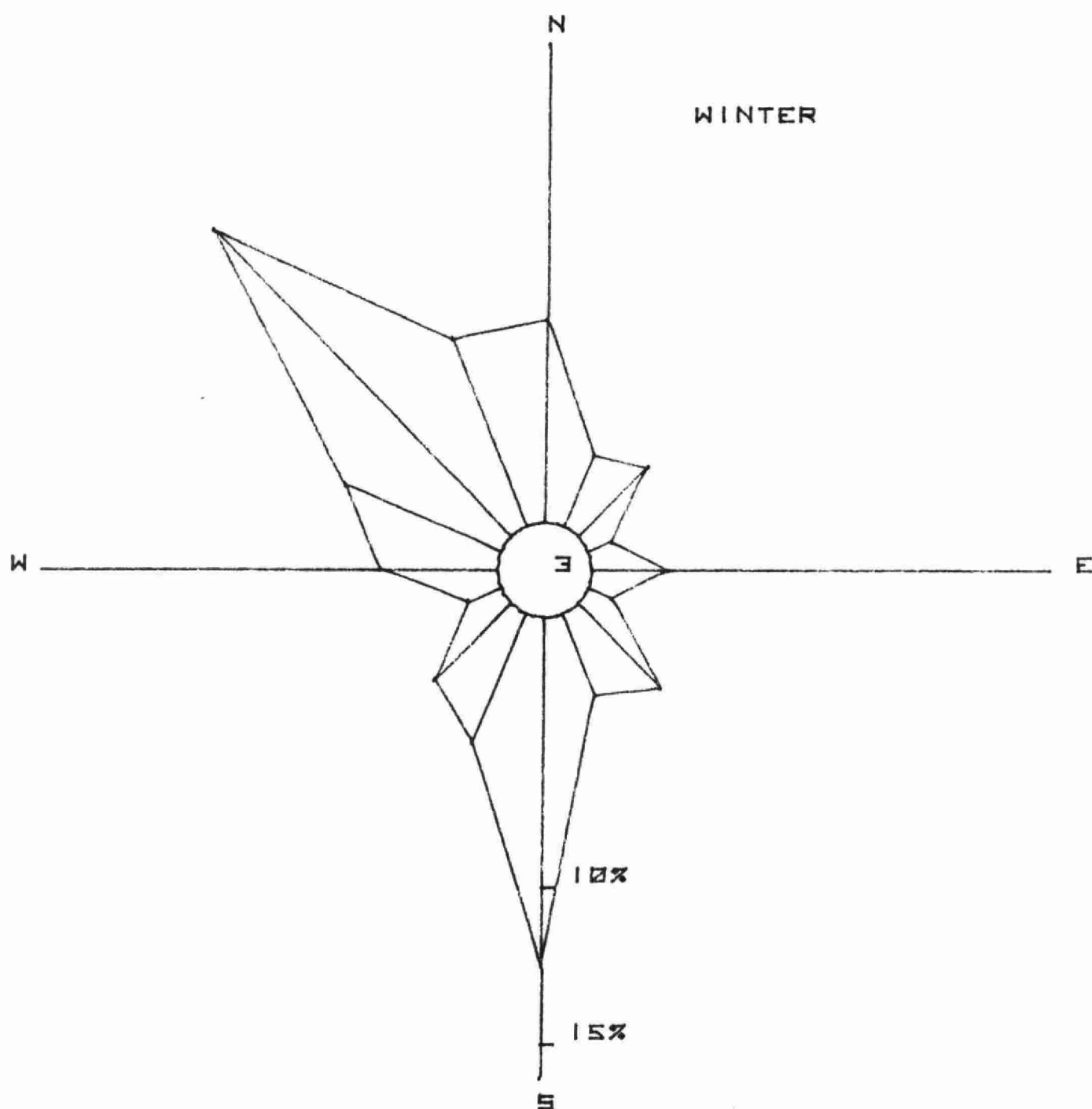


STATION INFORMATION

LOCATED AT THE AIRPORT WITH THE
 U2A WIND DETECTORS ON TOP OF THE
 BEACON TOWER, AREA FLAT WOODED.
 HEIGHT 19.1M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
0	1	3	1	3	3	5	5	0	0	5	4	7	11	13	8	5



STATION INFORMATION

LOCATED 8KM E OF TOWN IN ROLLING
BUSH COUNTRY. NW OF AIRPORT IS A RIDGE
EXTENDING 31M ABOVE FIELD LEVEL.
HEIGHT 10.2M

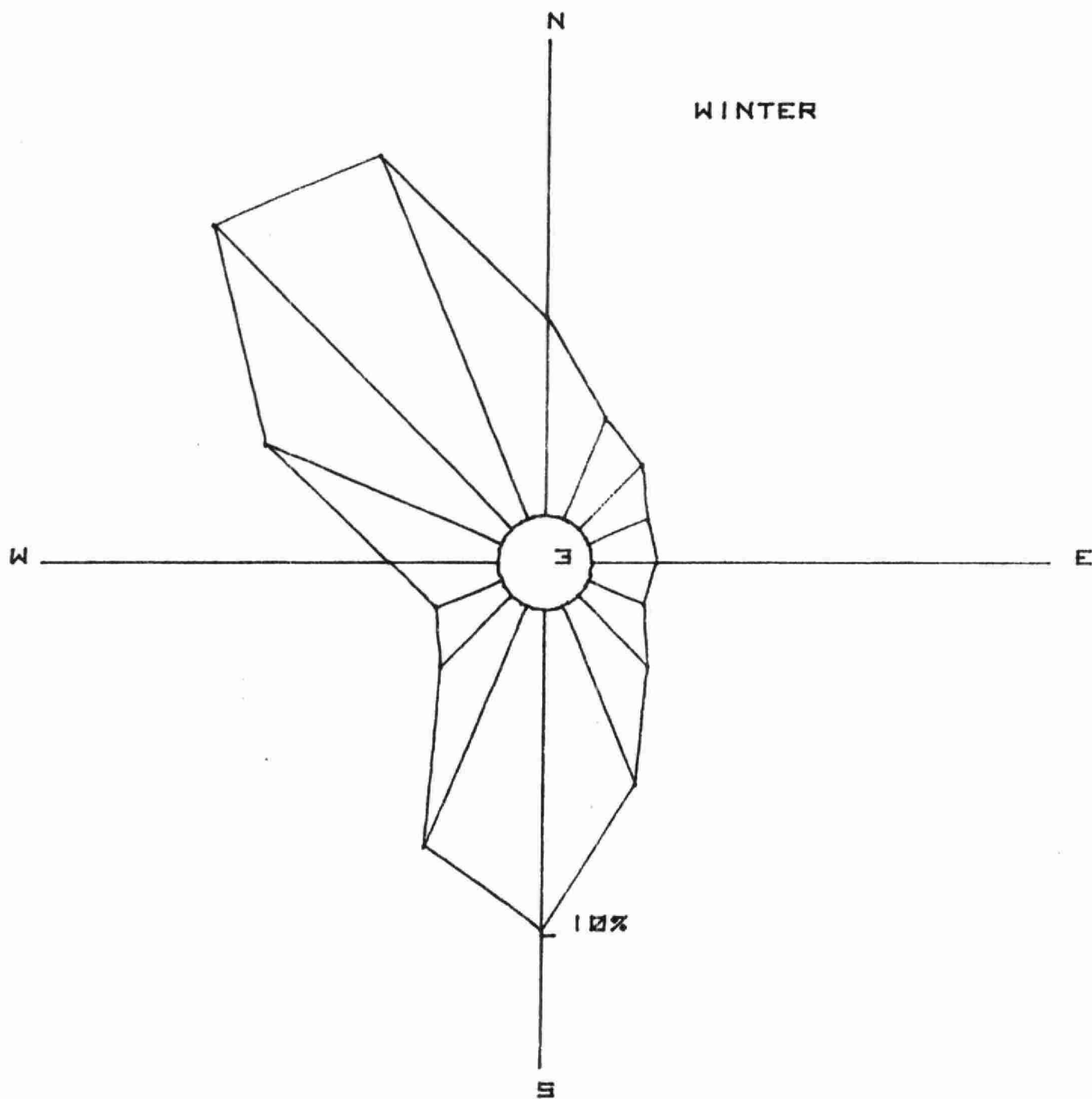
PERCENTAGE FREQUENCY

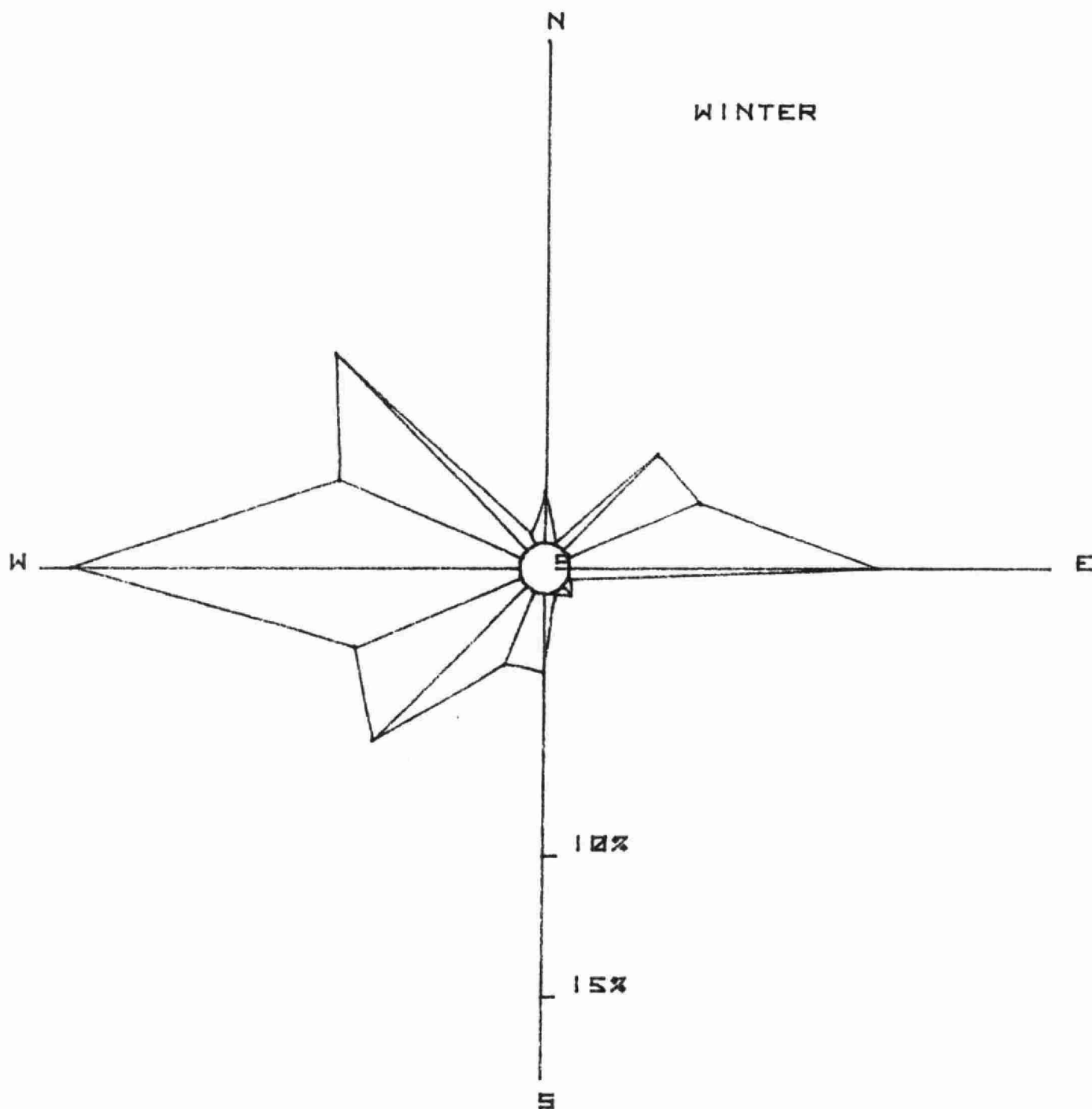
N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
0	4	5	2	4	2	5	4	13	6	5	3	5	7	15	6	3

KENDRA (AES) 1955-1972

36

(BIASES REMOVED)





STATION INFORMATION

LOCATED AT AIRODIO SITE NE 2.4KM OF TOWN ON
S SIDE HWY 60 NEAR GOLDEN LAKE, AREA AROUND
STN FIELD IS WOODED. HIGH TREES AFFECT N
WINDS. HEIGHT 17.5M

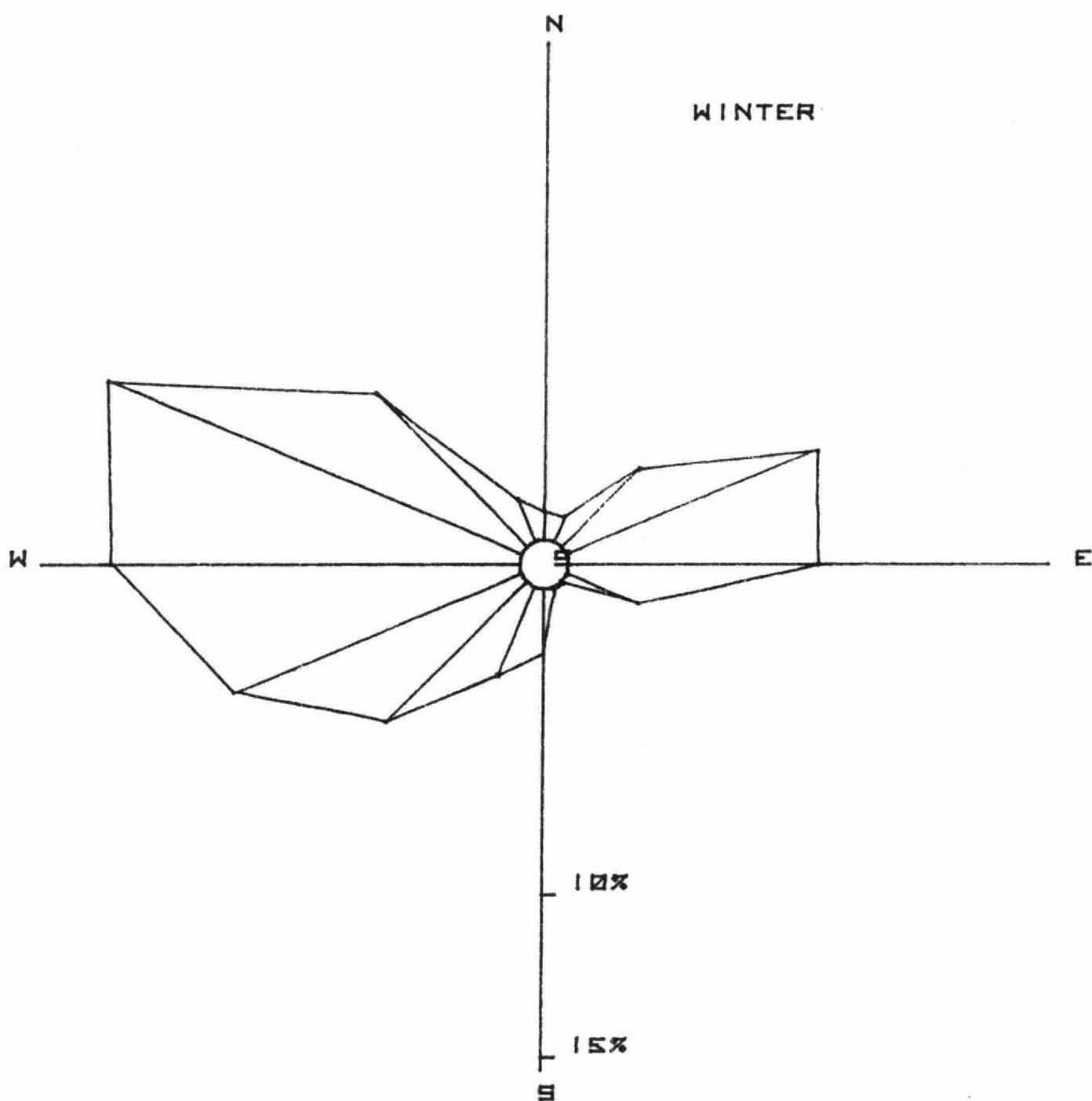
PERCENTAGE FREQUENCY

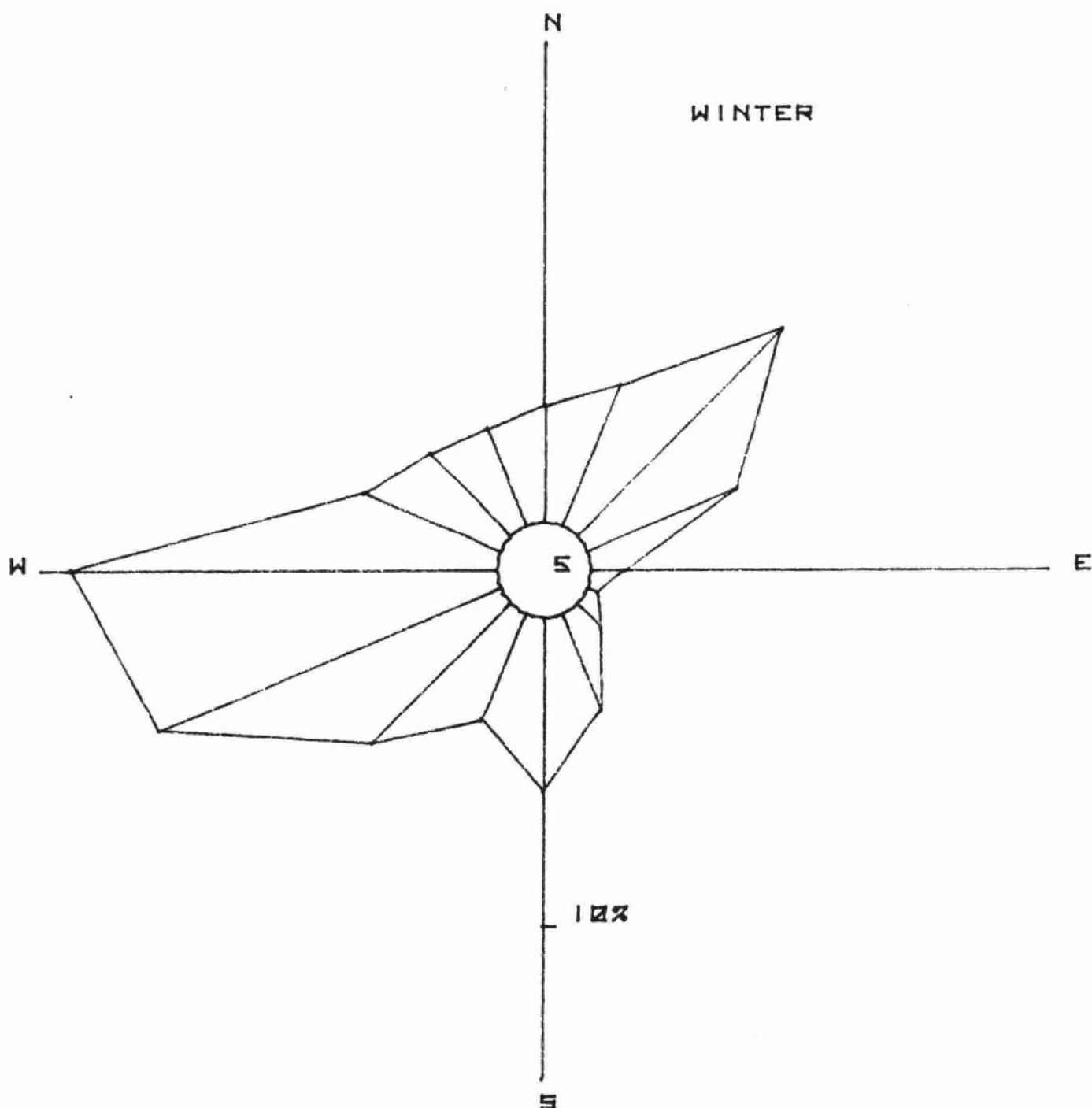
N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
3	1	6	6	12	1	1	1	4	4	8	7	17	8	11	1	8

KILLALDE (AES) 1955-1972

(BIASES REMOVED)

37



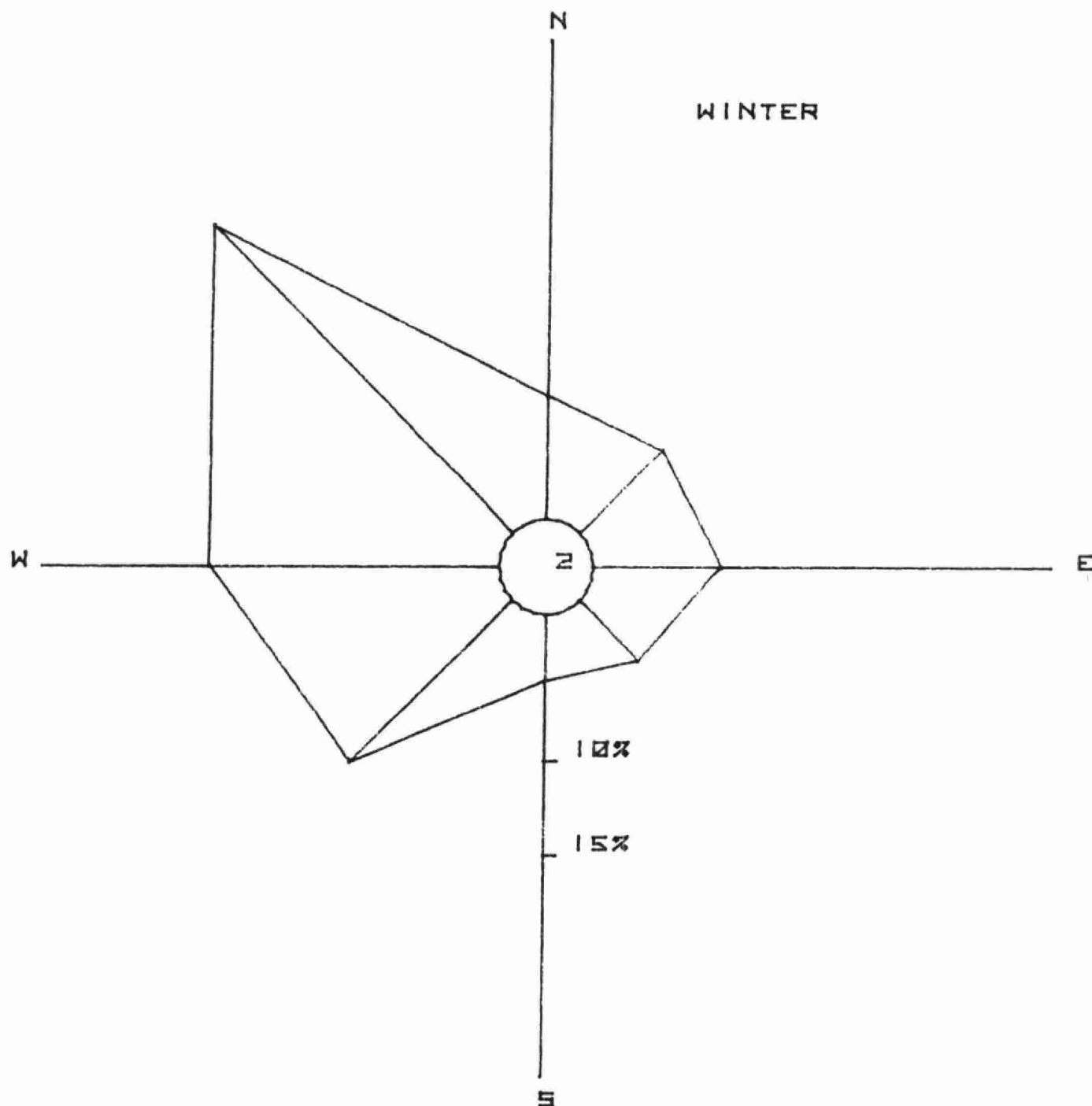


STATION INFORMATION

LOCATED N SHORE OF LAKE ONTARIO 6.4KM E OF KINGSTON. TO THE N AND W IS PARTLY WOODED FARMLAND. THE U2A TOWER IS WELL EXPOSED. HEIGHT 3.8M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
5	5	10	5	2	2	2	4	5	5	7	12	14	5	5	4	5

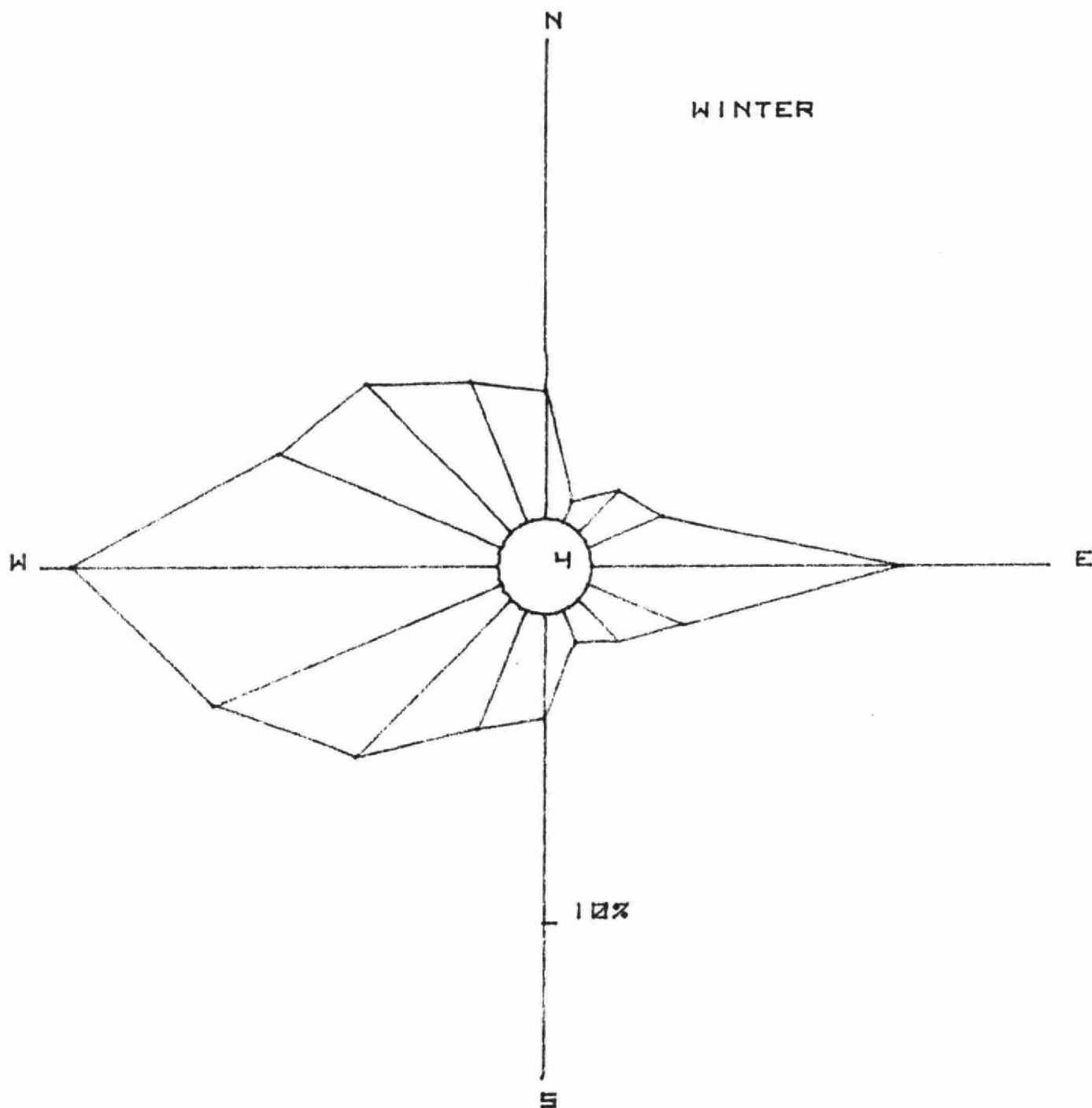


STATION INFORMATION

LOCATED IN SLIGHTLY ROLLING WOODED COUNTRY
 INTERSPACED WITH NUMEROUS LAKES. THERE ARE
 NO OBSTRUCTIONS IN ANY DIRECTION.
 HEIGHT 13.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	8	9	7	6	15	18	25	2

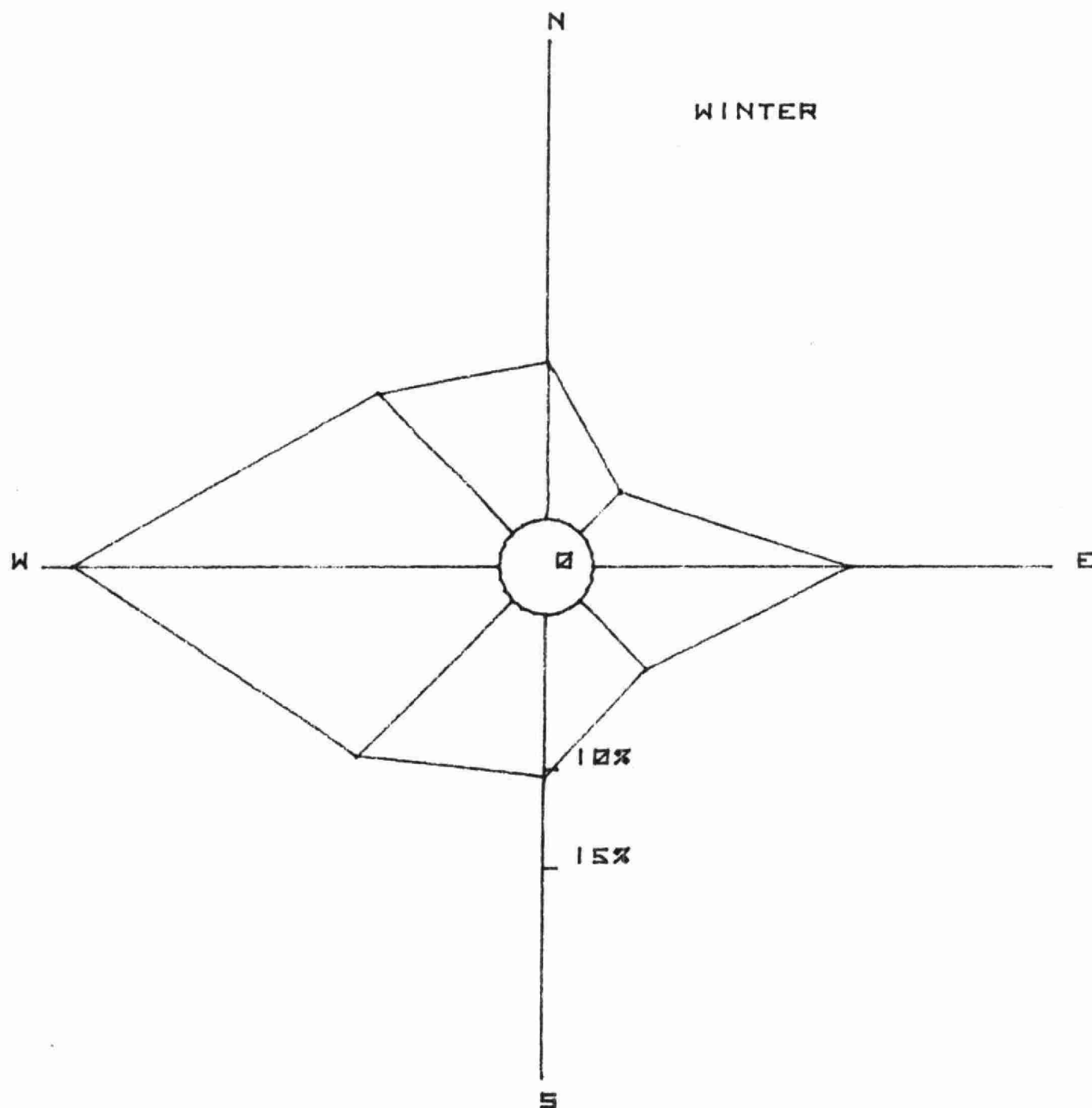


STATION INFORMATION

LOCATED 9.6KM E OF CITY CENTRE AREA IS
 FLAT WITH SLIGHT ROLL IN NW SECTION OF
 RUNWAY COMPLEX
 HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
2	2	3	4	10	4	3	2	4	5	8	10	14	8	7	8	4



STATION INFORMATION

LOCATED WHEN OPERATED
 WAS 8KM SW OF LONDON. THE COUNTRY
 IS VERY FLAT WITH A SLIGHT SLOPE TO THE S.
 HEIGHT 17.8M

PERCENTAGE FREQUENCY

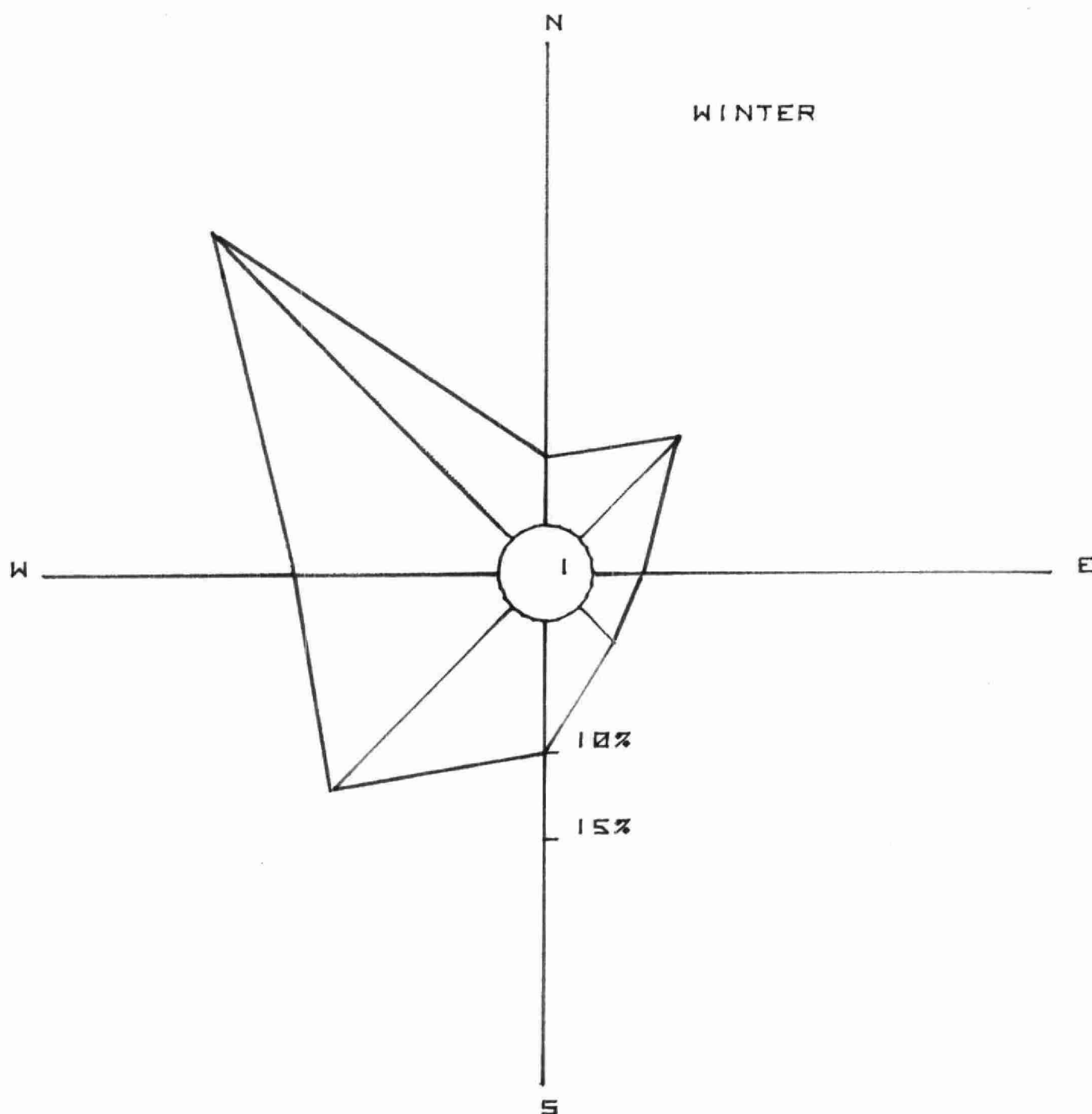
N	NE	E	SE	S	SW	W	NW	CALM
10	5	16	7	11	14	24	12	0

LONG POINT

No DATA for Winter

MAIN DUCK ISLAND

No DATA for Winter

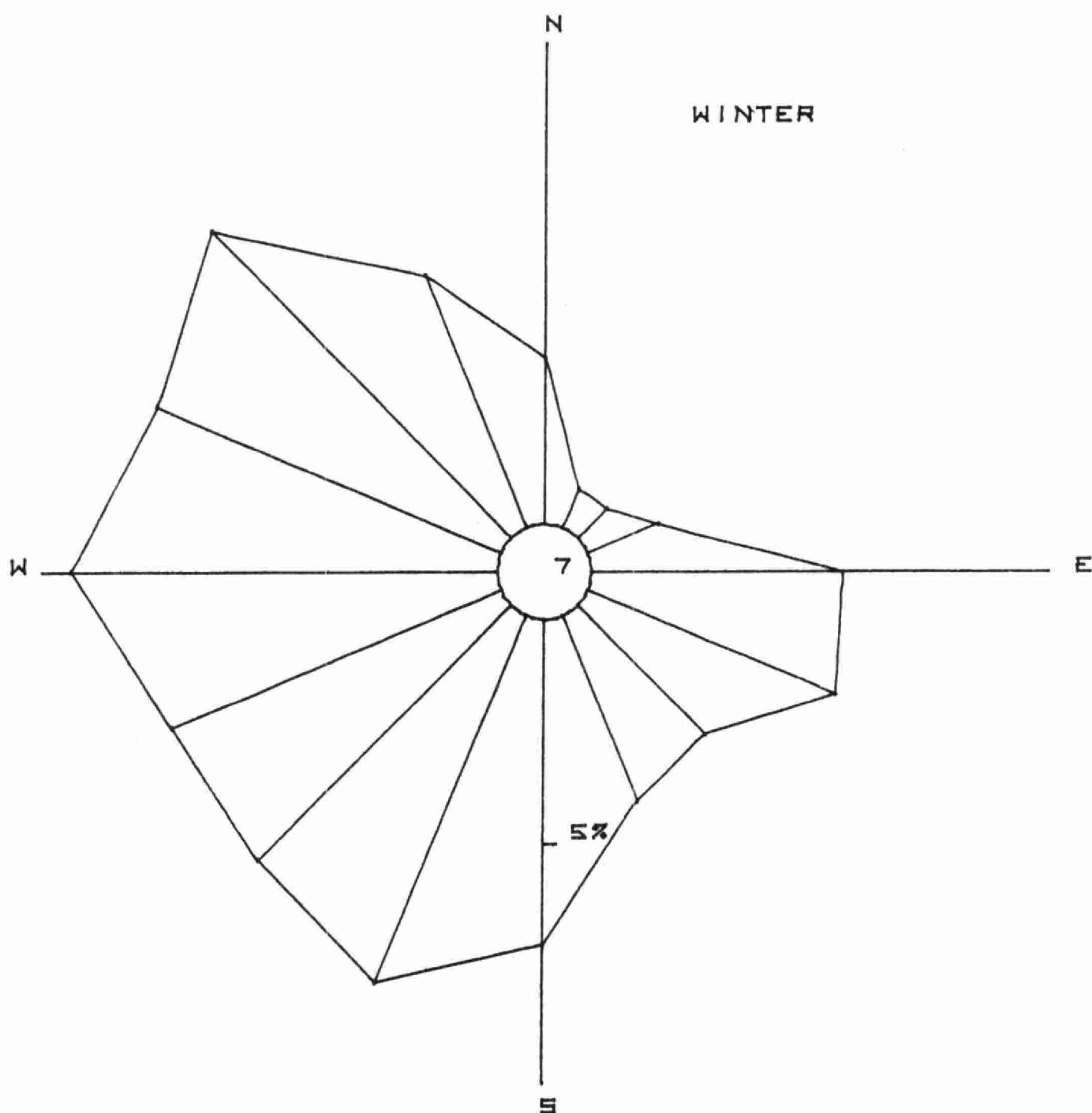


STATION INFORMATION

LOCATED NW BANK MOOSE RIVER 16KM SW JAMES
BAY, FLAT HEAVILY WOODED AREA, TOWER 92M W
OF OPERATIONS BLDG.
HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
7	11	6	6	10	16	15	26	1

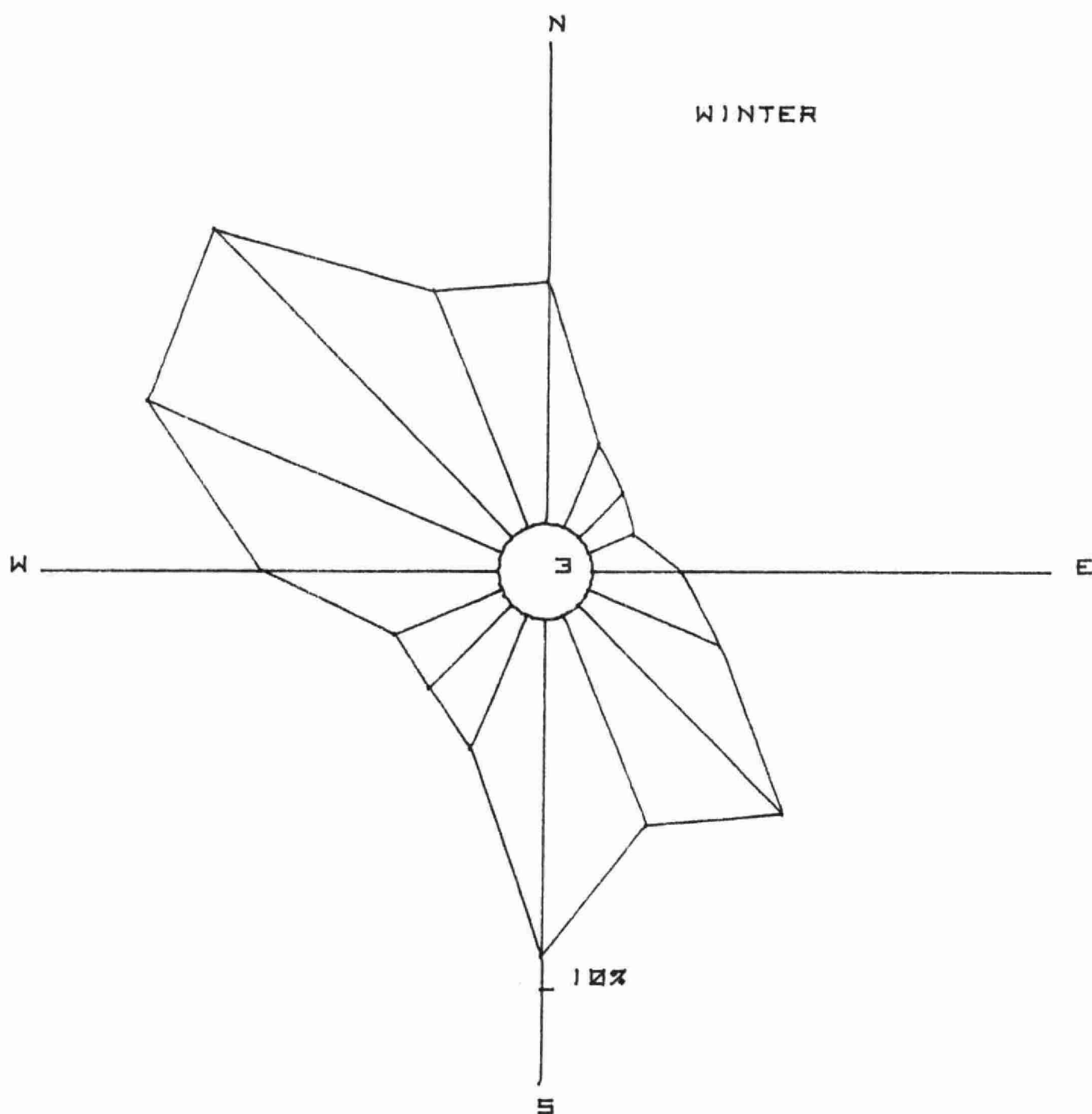


STATION INFORMATION

LOCATED E SIDE HWY 6 ON N EDGE O TOWN N OF
CN TRACKS, RISING SLIGHTLY TO THE NE AND FLAT
NE THROUGH SE. A 2 STORY BLDG 23.1M TO NW
COULD CAUSE TURBLANCE. HEIGHT 10.8M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
1	2	2	2	5	5	4	5	7	5	5	5	15	10	5	5	7



STATION INFORMATION

LOCATED

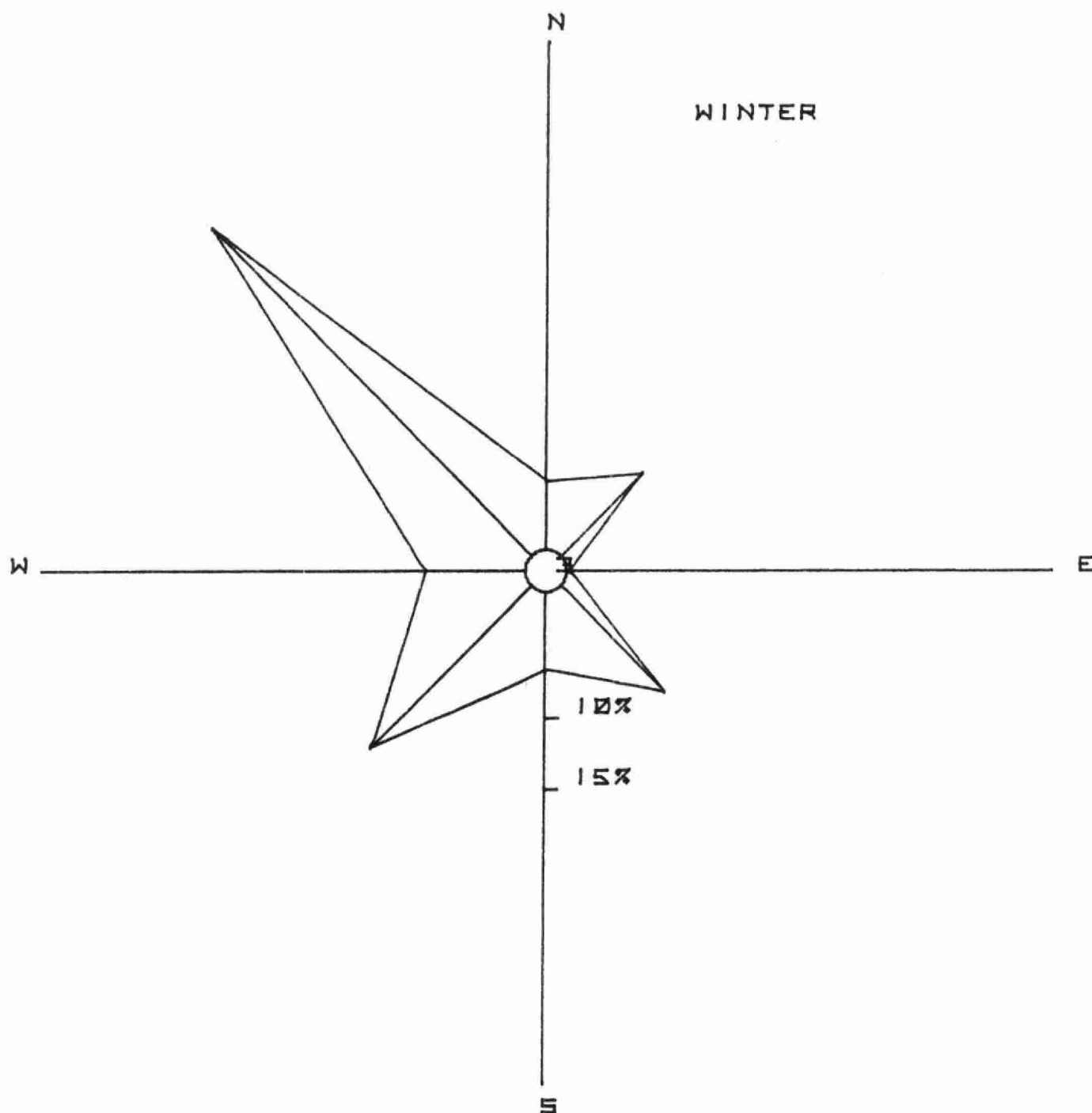
8KM NE OF GRAVENHURST ON HWY 11 IN

ROLLING WOODED AREA

HEIGHT 27.1M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
7	3	3	2	3	5	8	7	8	5	4	4	7	11	12	7	3



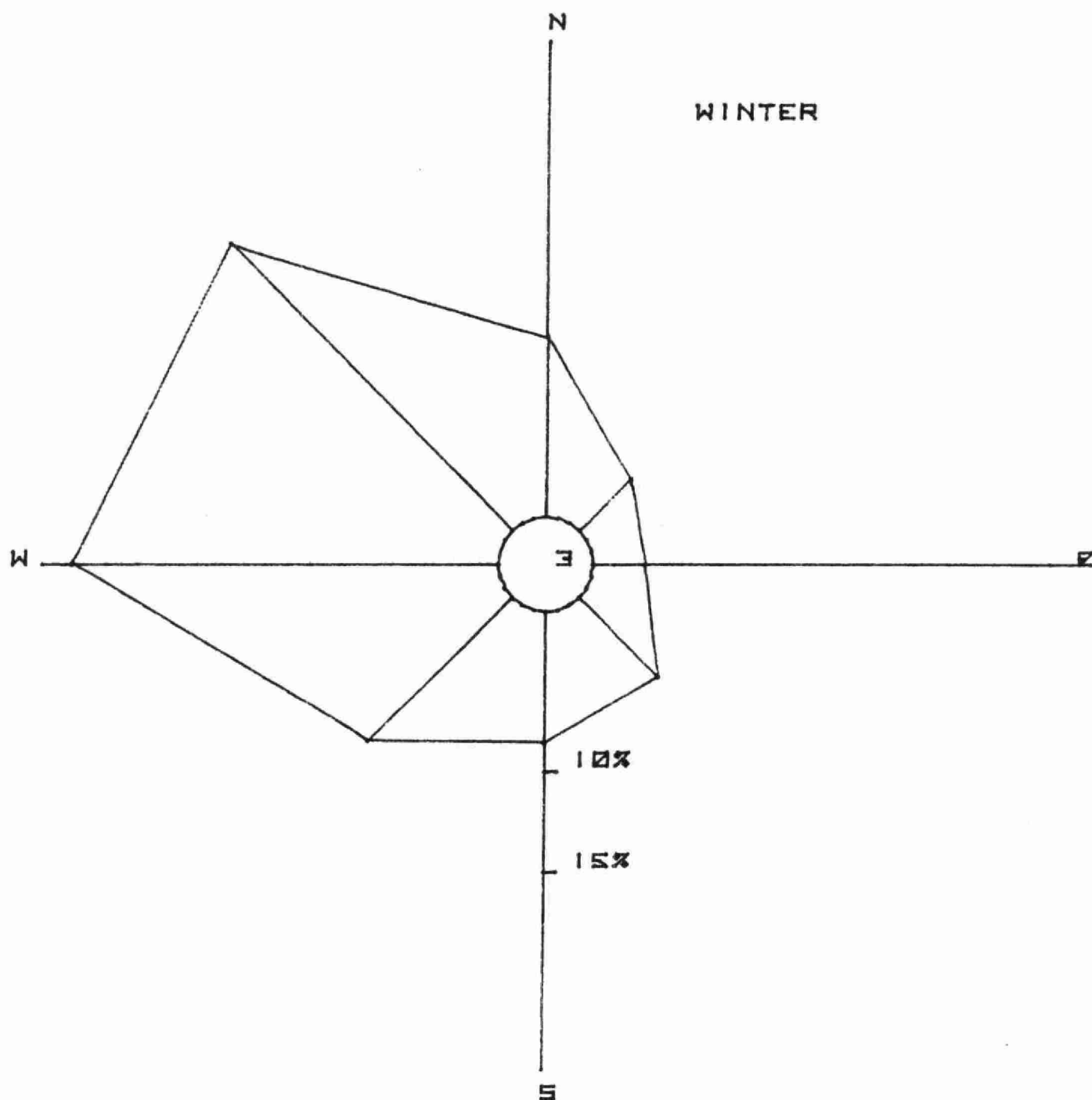
STATION INFORMATION

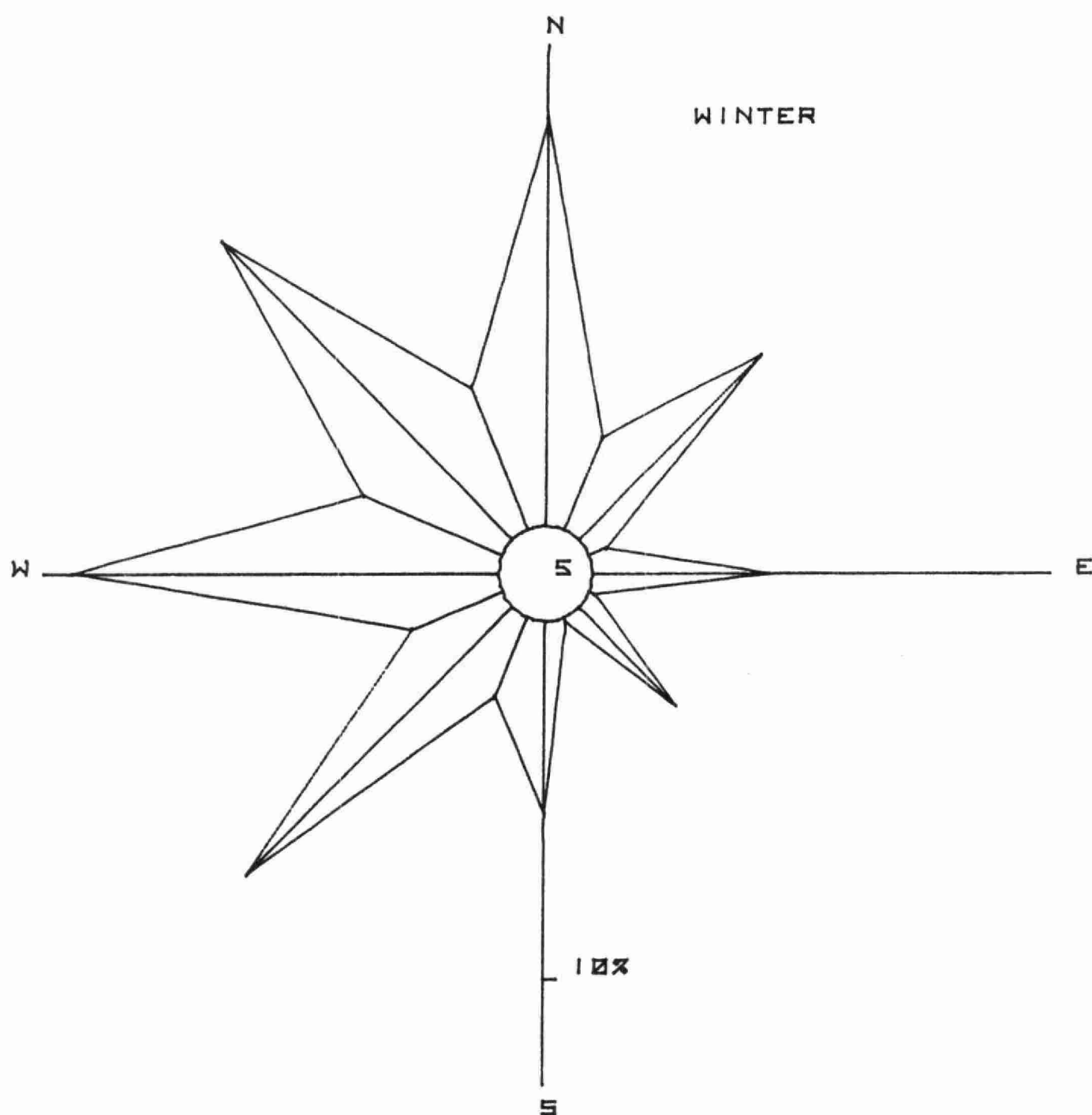
LOCATED IN HEAVILY WOODED AREA, WOODS IN ALL DIRECTIONS. CONSIDERABLE SHELTERING TO E-S AND SW. GOOD SWEEP FROM W AND NW
HEIGHT 13.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
5	10	2	12	7	18	8	34	3

(BIASES REMOVED)





STATION INFORMATION

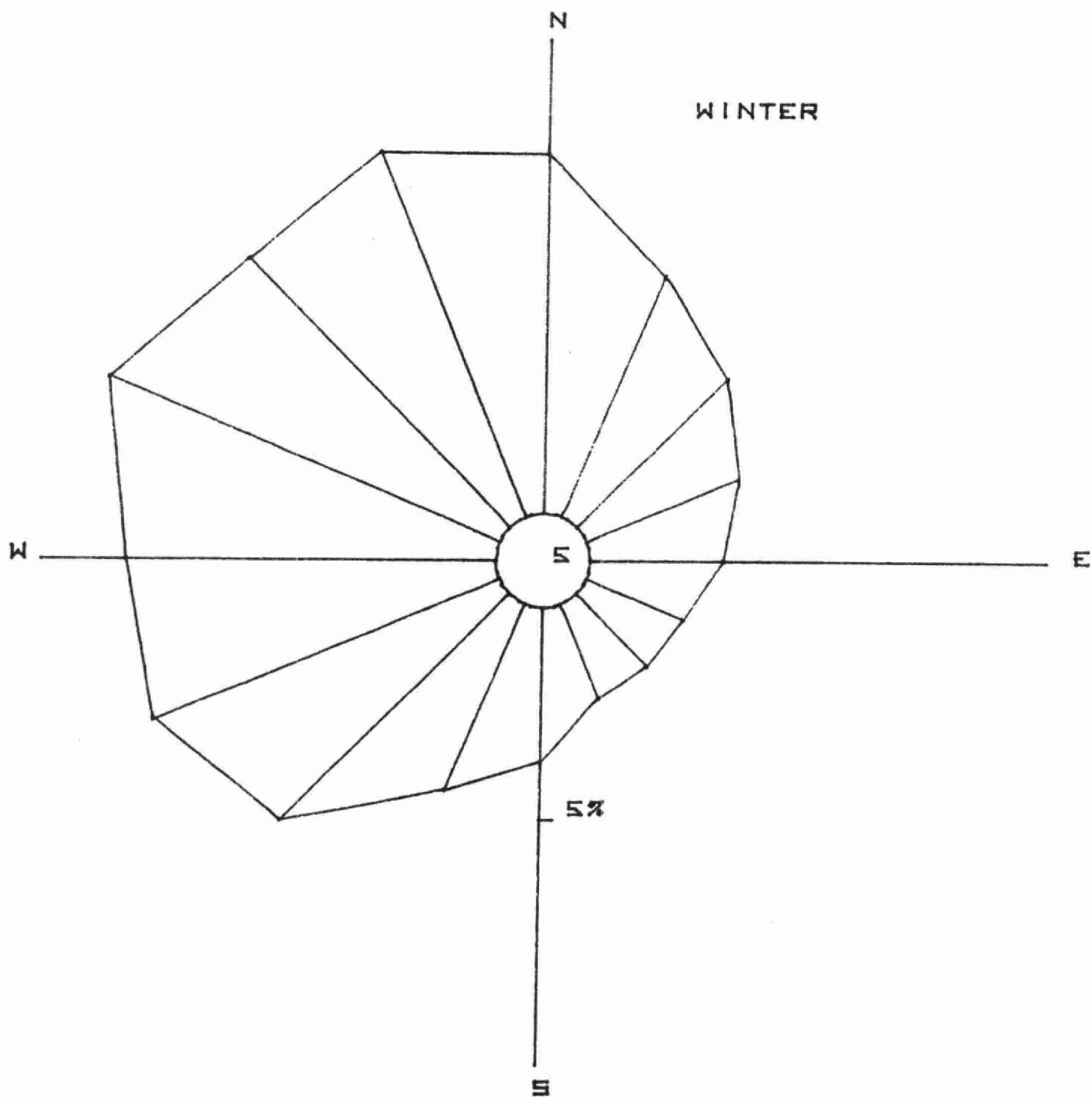
LOCATED AT AIRPORT IN FOREST. COUNTRY HILLY
WITH ODD FLAT AREA. NO OBSTRUCTIONS EXCEPT
N WHICH HAS 9.2-13.8M HIGH TREES
HEIGHT 16M

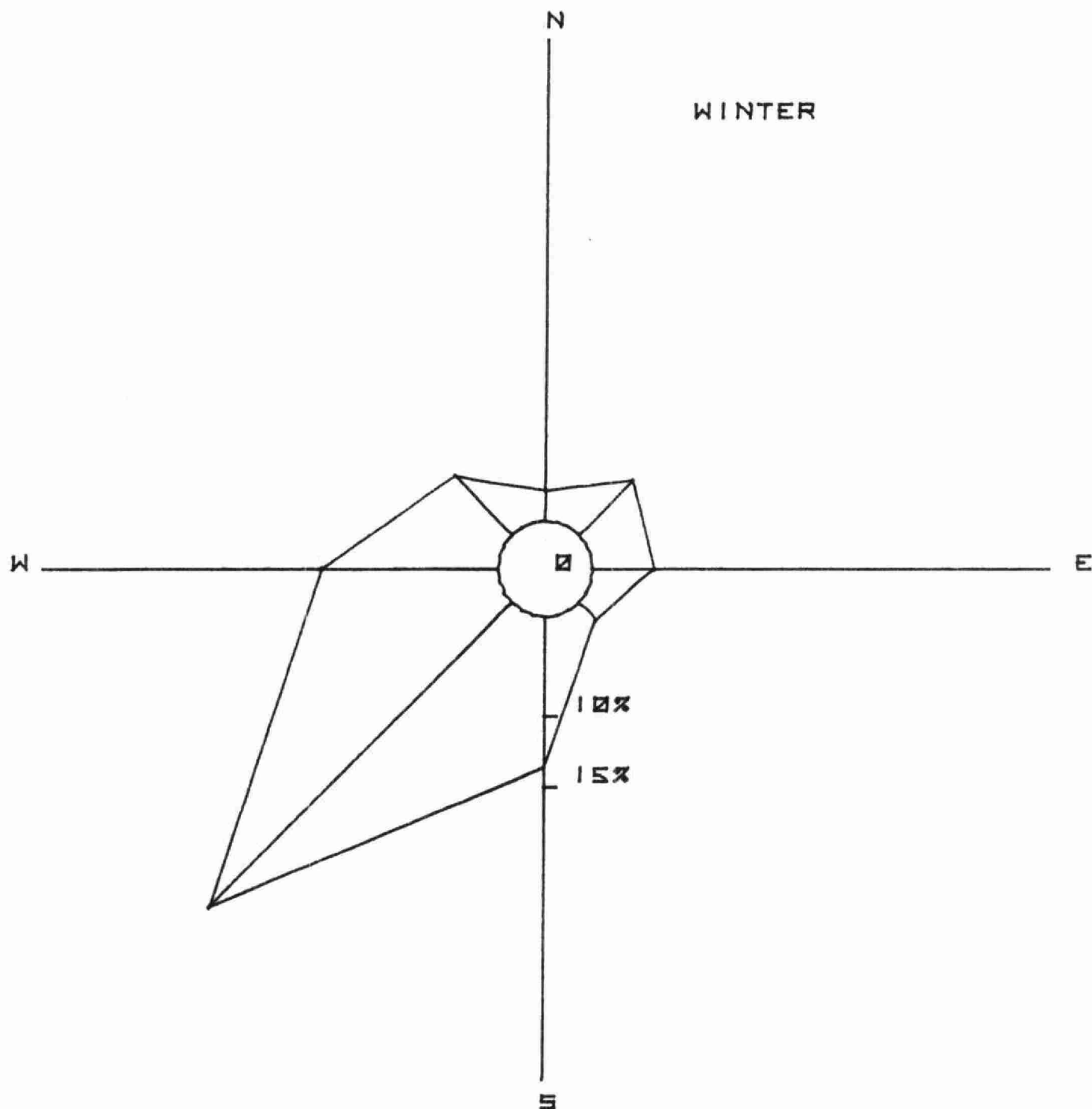
PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
1	4	8	2	5	1	5	1	6	3	11	4	12	5	12	5	5

NAKINA (AES) 1955-1967

(BIASES REMOVED)



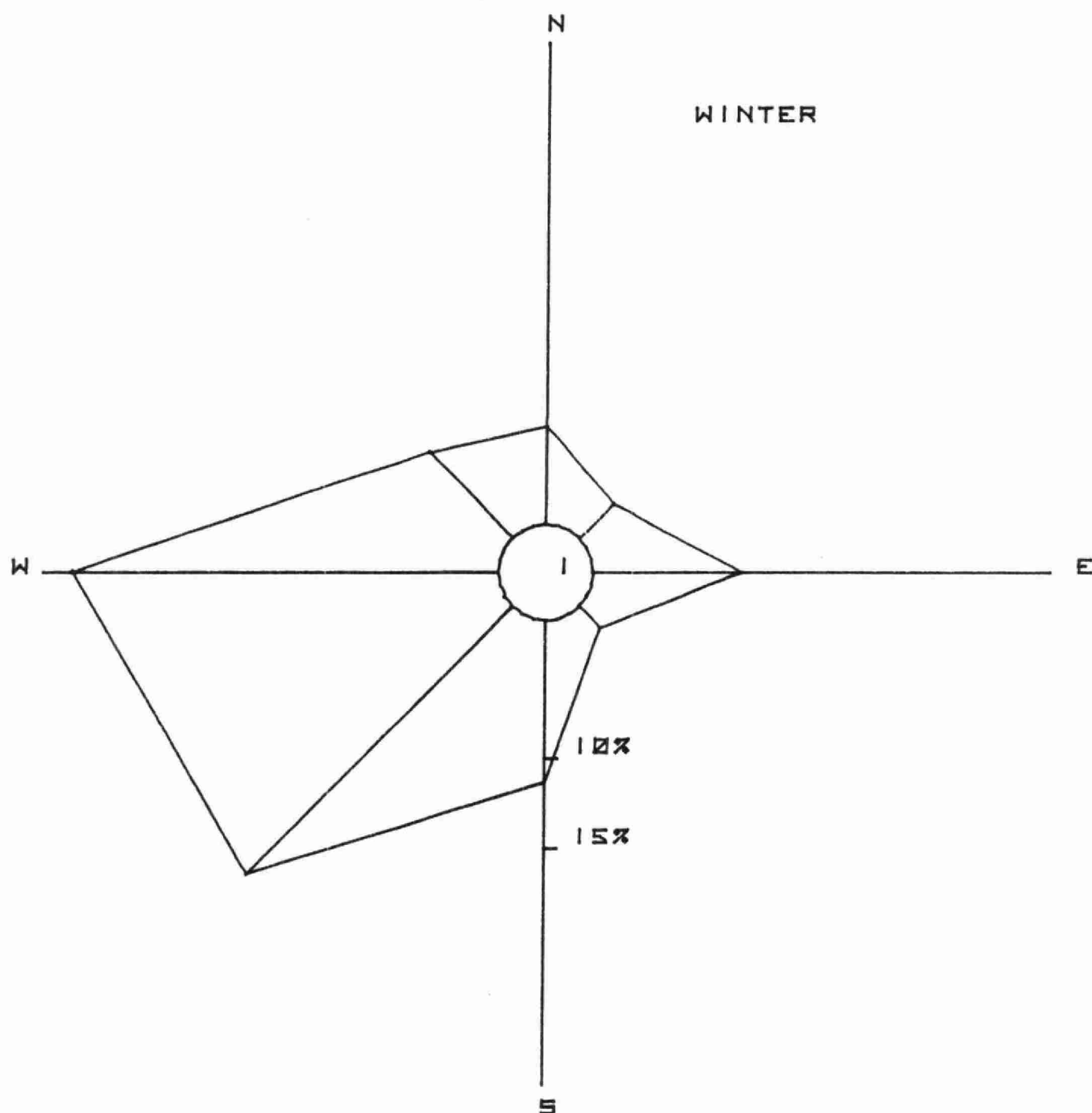


STATION INFORMATION

LOCATED
ON ROOF OF ST FRANCIS SCHOOL AT
VICTORIA/LEADER STREETS
HEIGHT 10.1M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
0	0	0	0	14	34	16	0	0

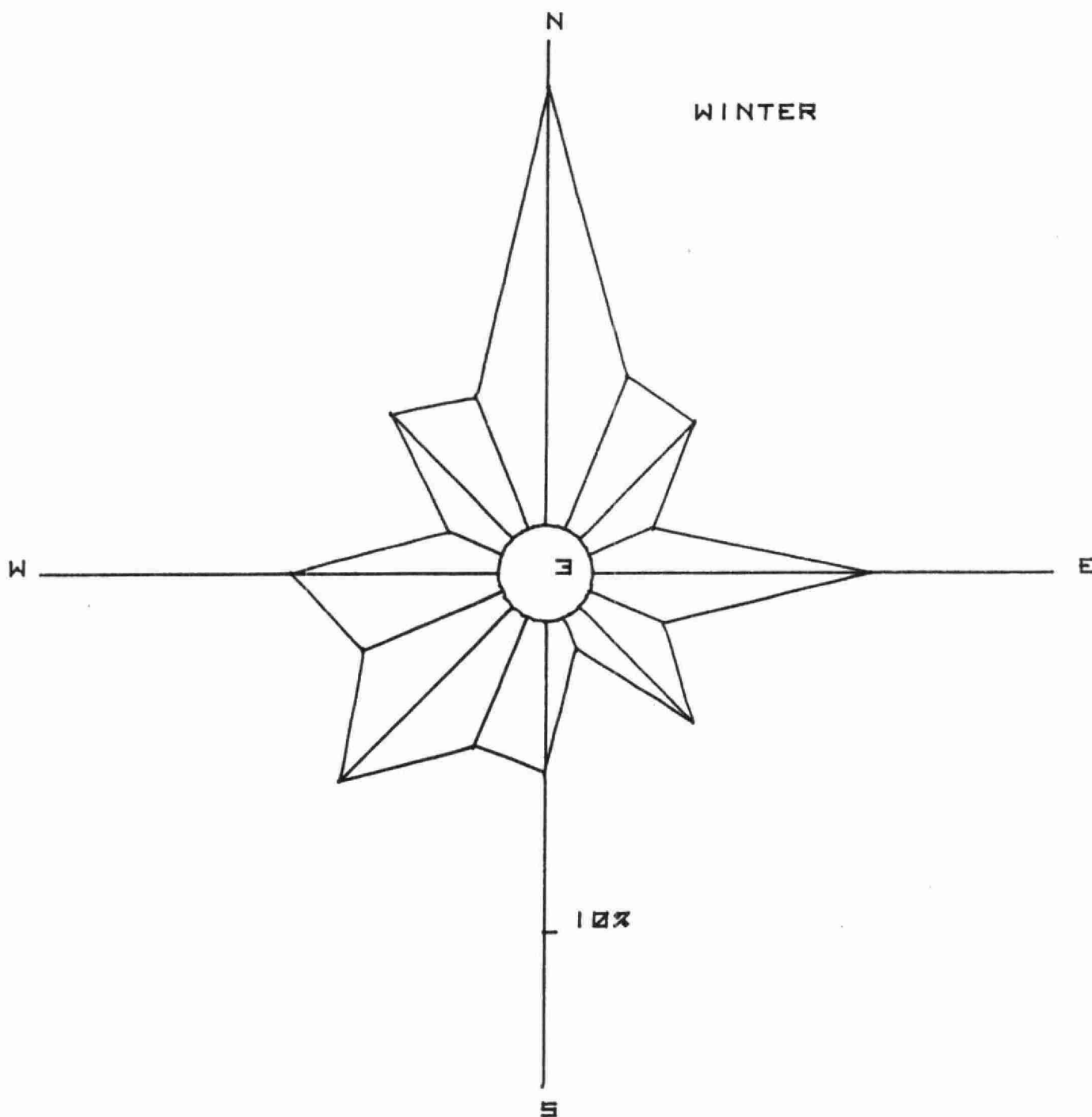


STATION INFORMATION

LOCATED
ON GRASS ISLAND HYDRO DAM IN
NIAGARA RIVER
HEIGHT

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	5	11	4	12	24	27	8	1



STATION INFORMATION

LOCATED ON AIRFIELD, N OF CITY IN SLIGHTLY
 HILLY COUNTRY WITH AN ESCARPMENT IN A E-W
 DIRECTION SOUTH OF AIRPORT. NO OBSTRUCTIONS
 HEIGHT 13.2M

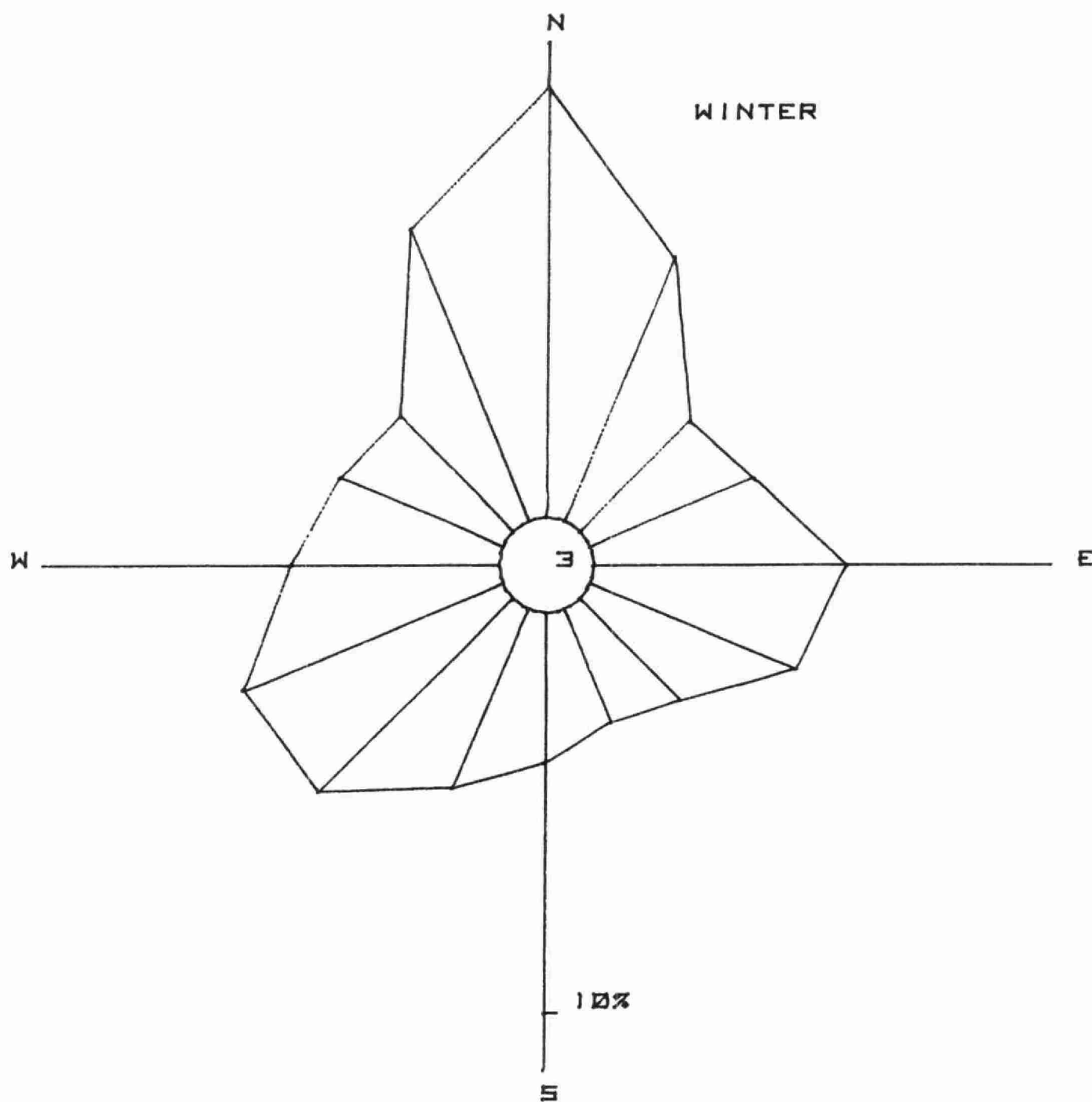
PERCENTAGE FREQUENCY

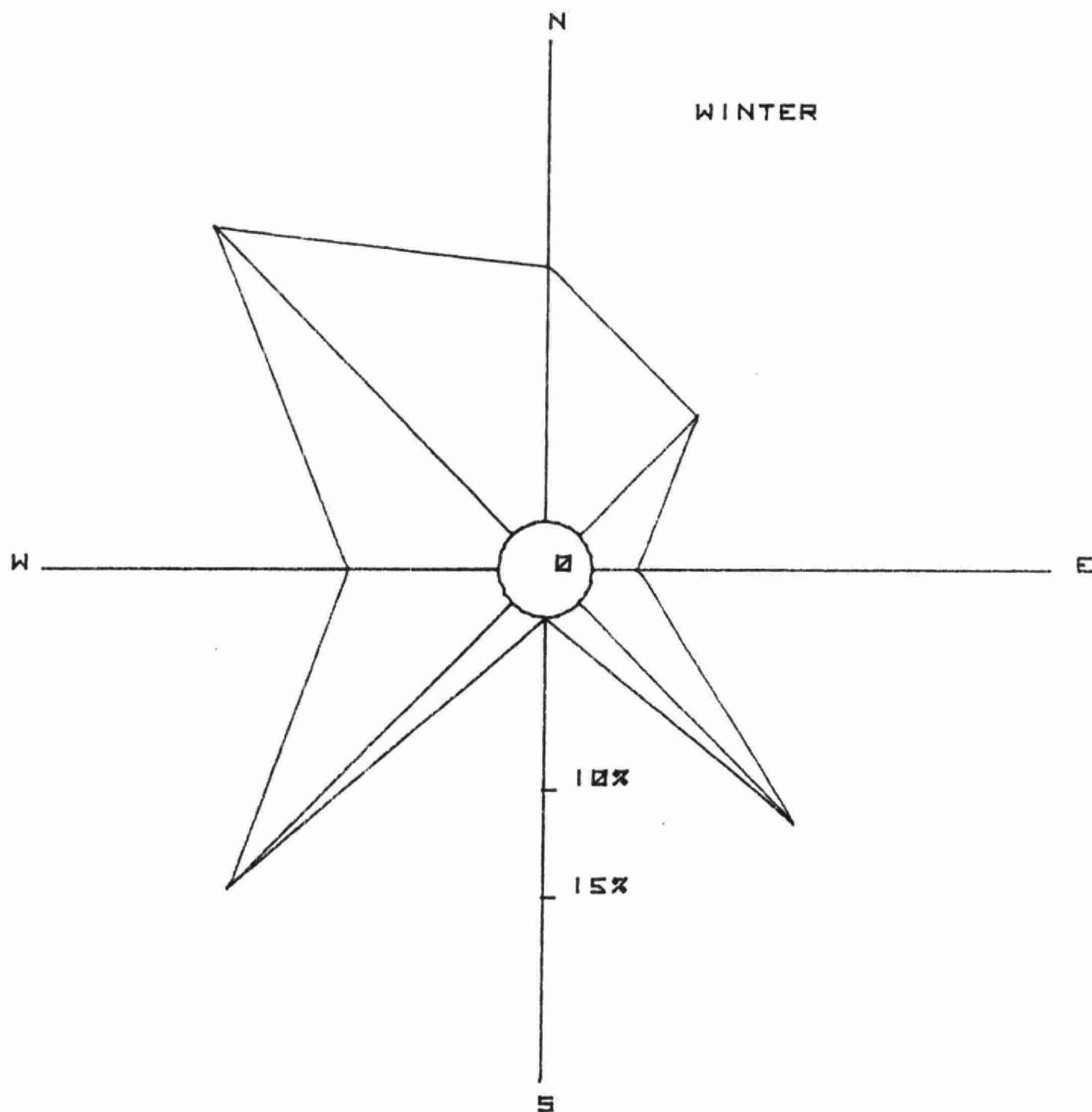
N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
14	5	5	3	5	4	5	2	5	5	5	5	7	3	5	5	3

NORTH BAY (AES) 1955-1972

(BIASES REMOVED)

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STATION INFORMATION

LOCATED IN A DEPRESSION ON THE SW-NE
 RUNNING HEIGHT OF LAND SEPARATING LAKE
 ONTARIO AND GEORGIAN BAY DRAINAGE AREA
 HEIGHT 24.6M

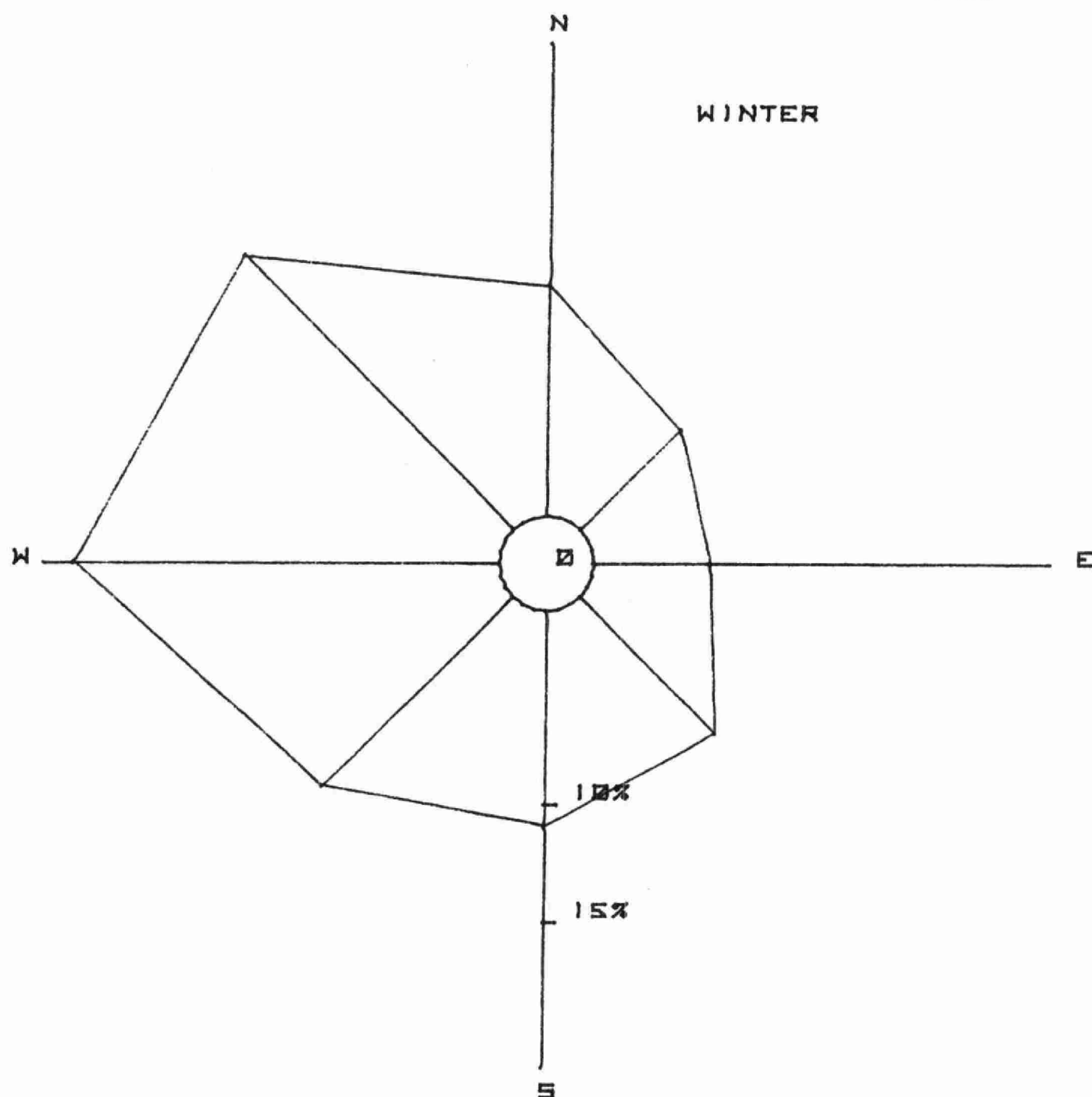
PERCENTAGE FREQUENCY

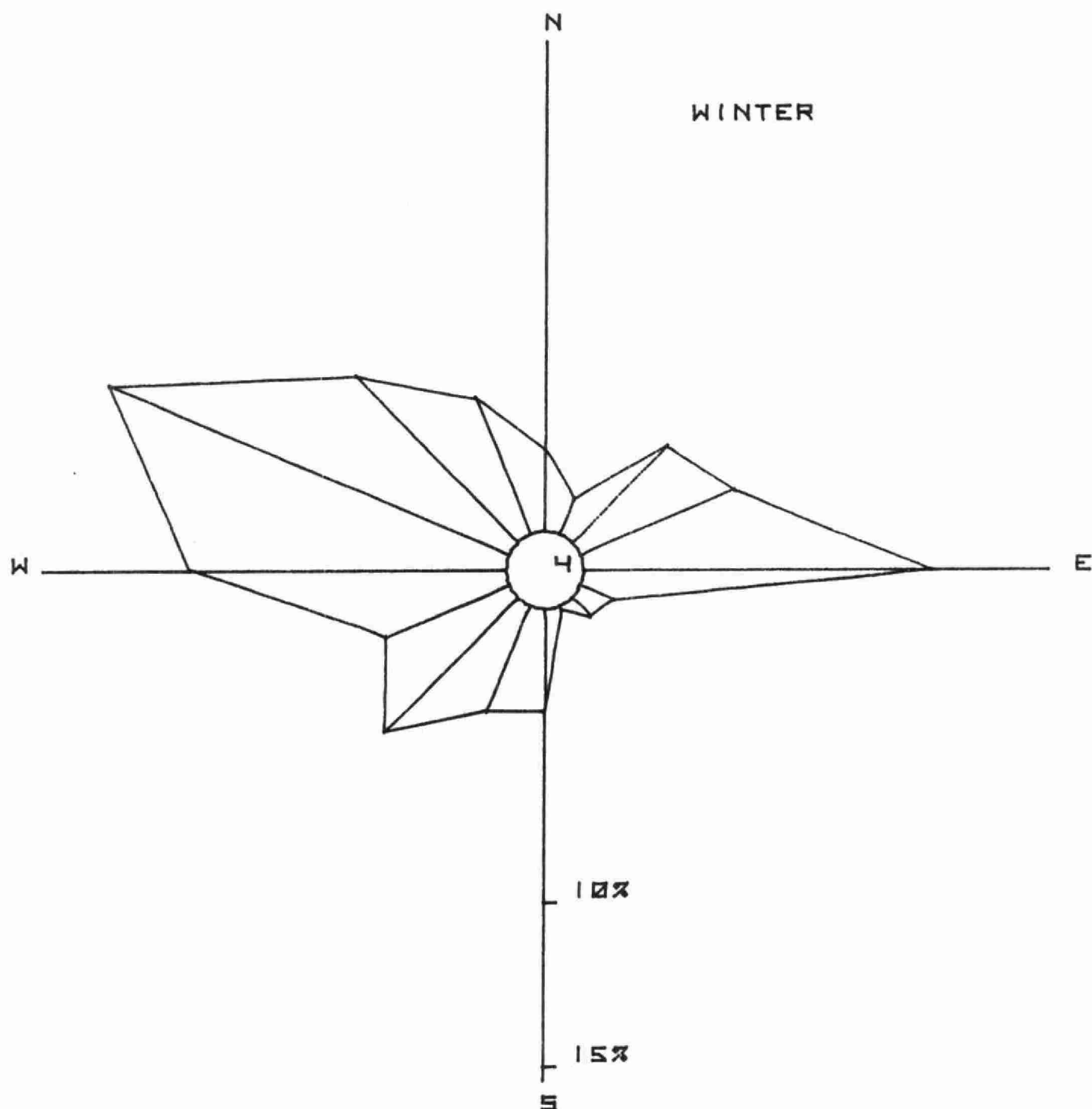
N	NE	E	SE	S	SW	W	NW	CALM
14	10	4	17	2	21	8	22	0

DAK RIDGES (AES) 1922-1941

(BIASES REMOVED)

52





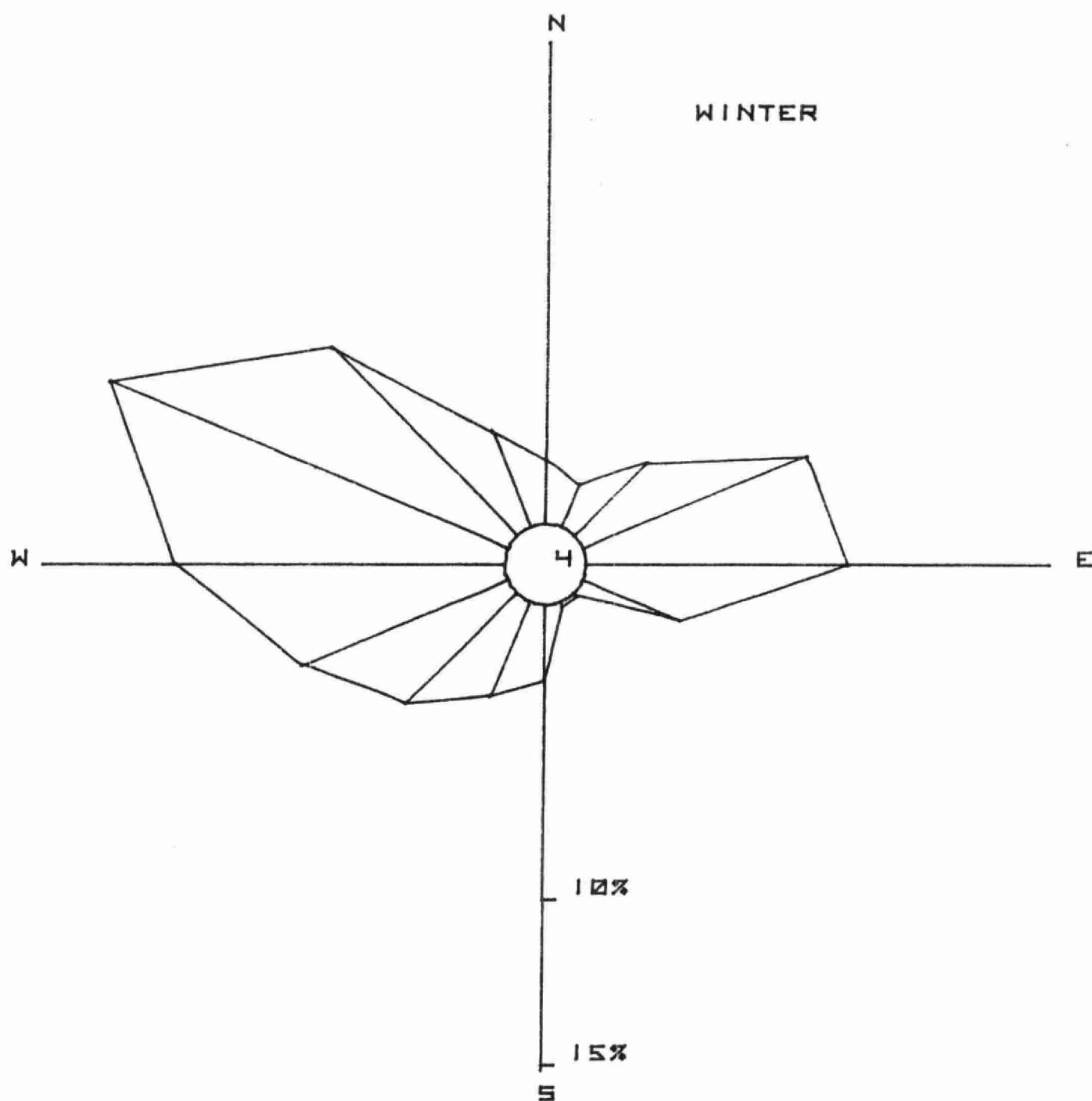
STATION INFORMATION

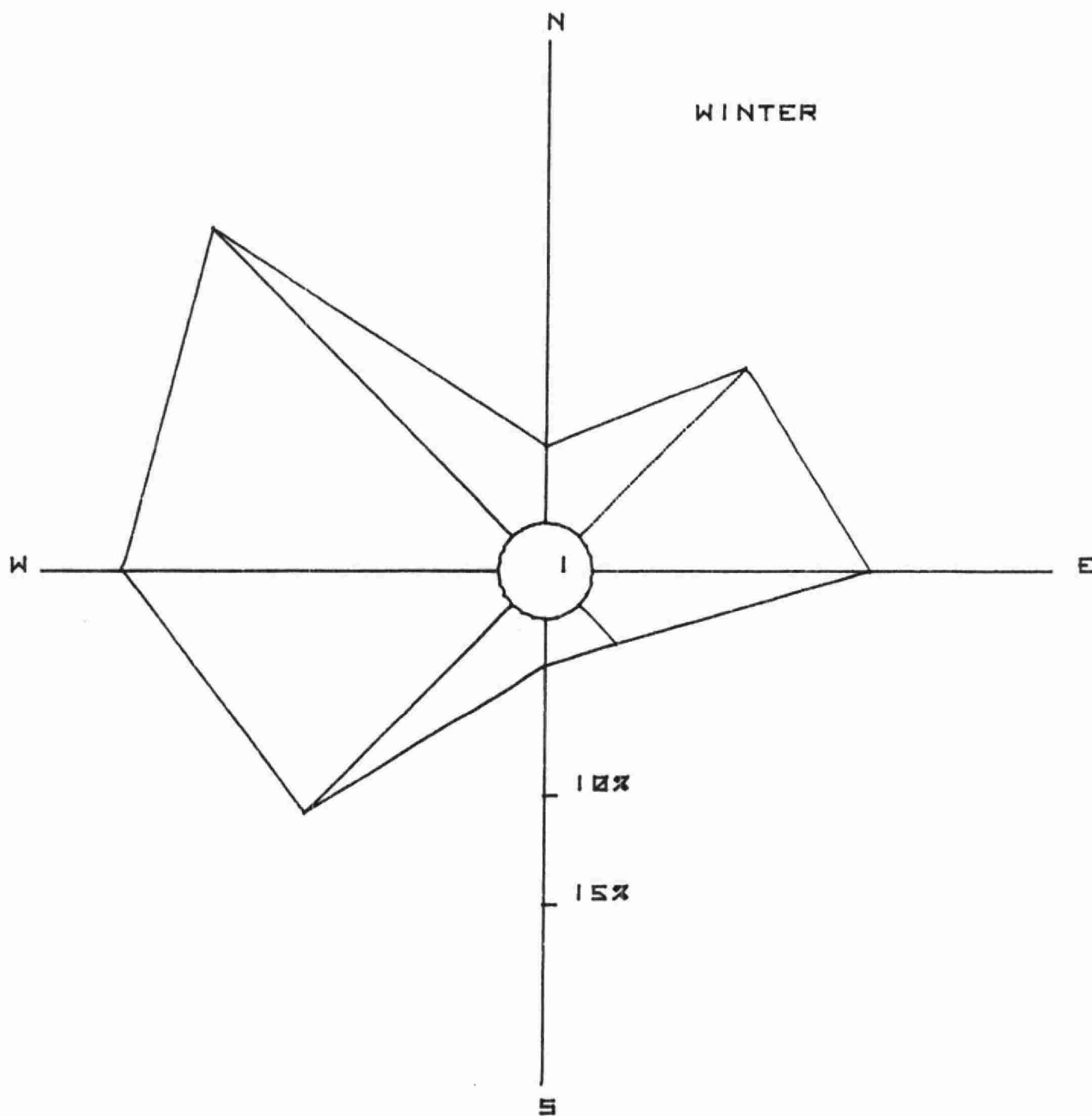
LOCATED AT THE AIRPORT
 SE OF CITY IN SLIGHTLY ROLLING AREA
 APPROX 25.6KM NW TO GATINEAU HILLS
 HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
1	2	5	6	12	2	2	1	4	5	7	5	11	15	8	6	4

(BIASES REMOVED)



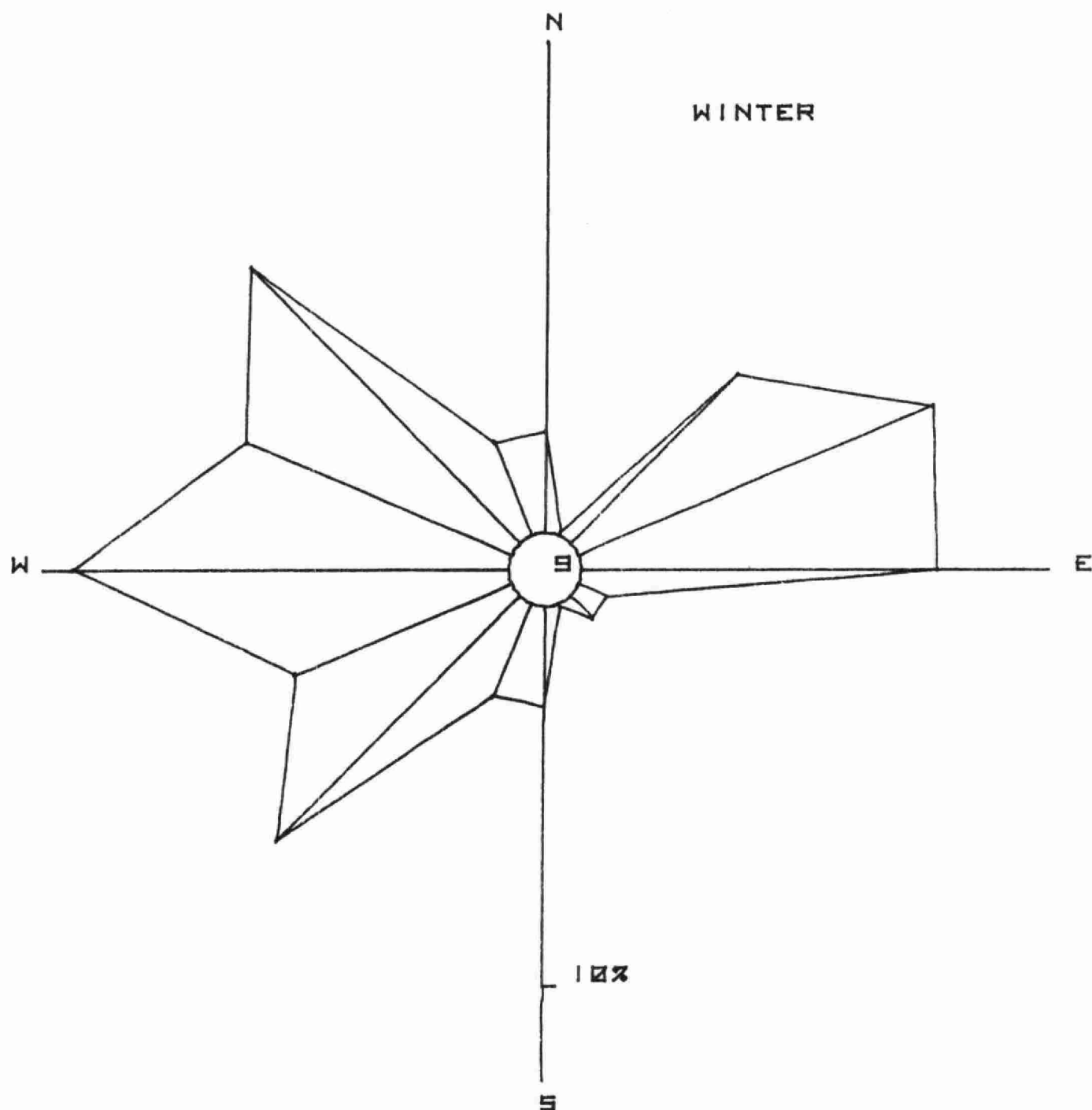


STATION INFORMATION

LOCATED E LIMITS OF CITY ATOP ADMIN
OFFICE AMONG RESEARCH BLDGS.
GOOD EXPOSURE ALL DIRECTIONS
HEIGHT 11.7M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	5	10	5	10	5	15	15	1



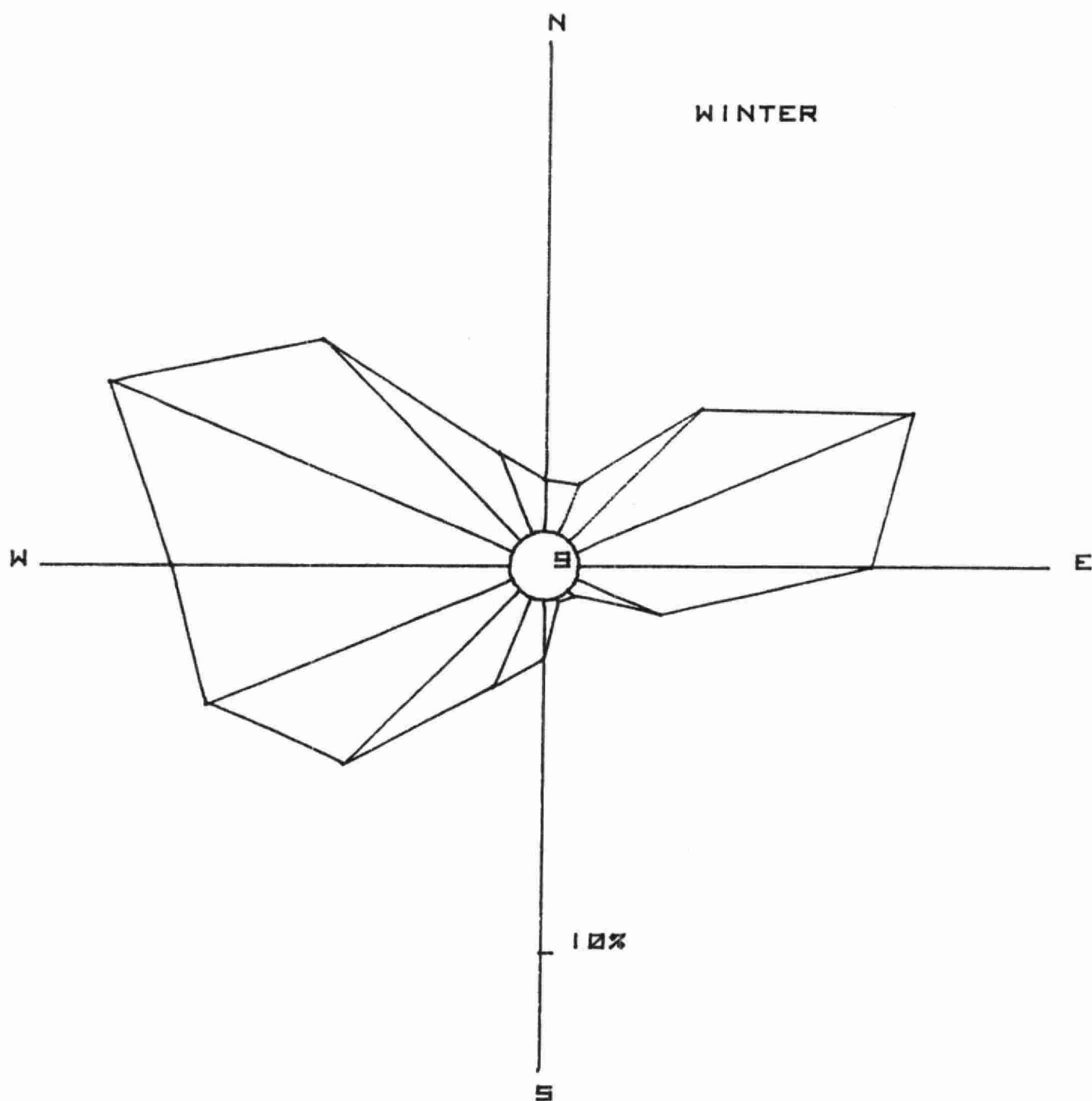
STATION INFORMATION

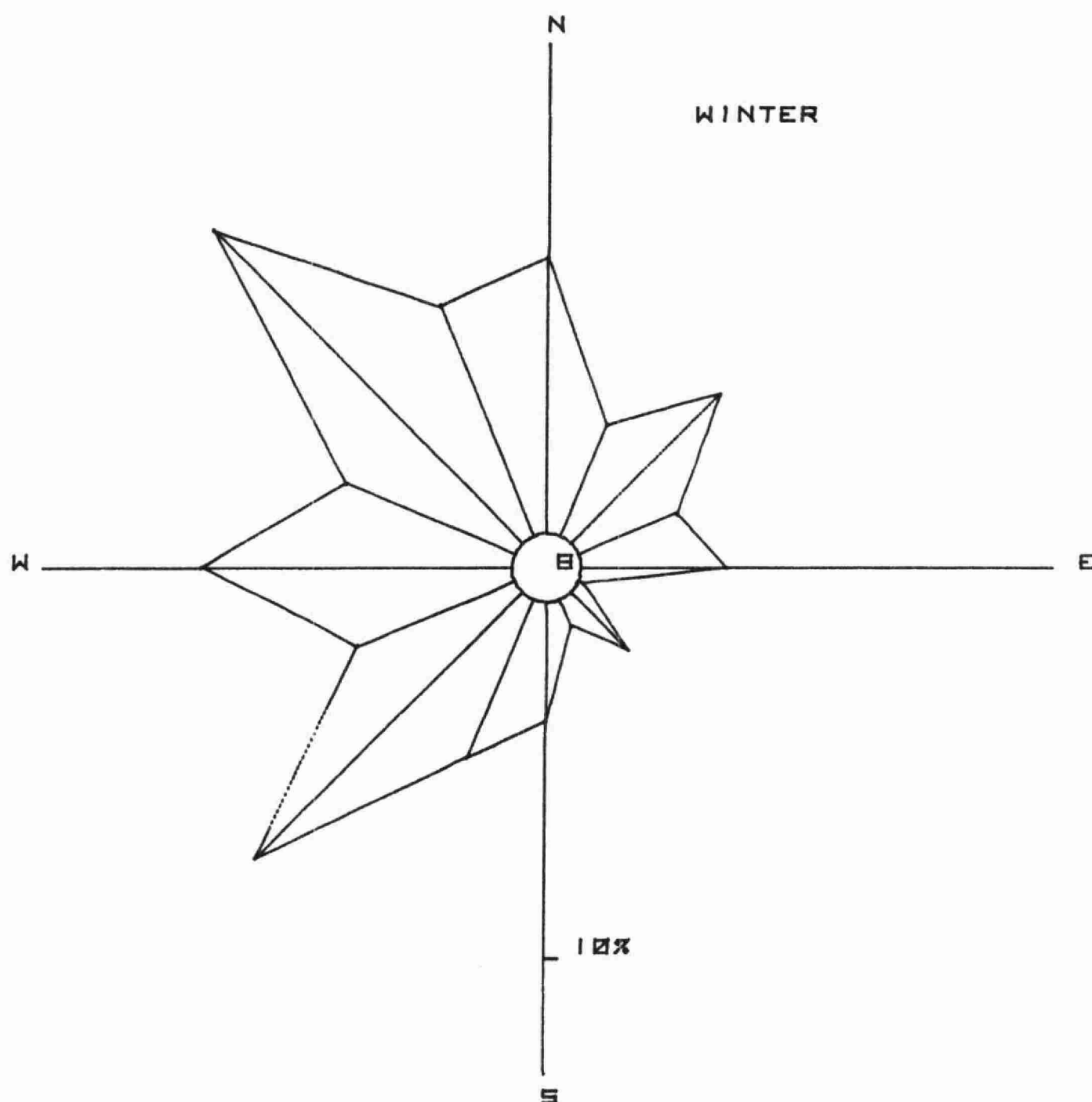
LOCATED AT AIRPORT E OF OUTSKIRTS,
1.5KM N ON HWY 17 ON S SHORE OTTAWA
RIVER. SURROUNDING COUNTRY IS ROLLING.
HEIGHT 15.4M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
3	1	7	10	10	2	2	1	3	3	8	7	12	8	10	3	8

(BIASES REMOVED)





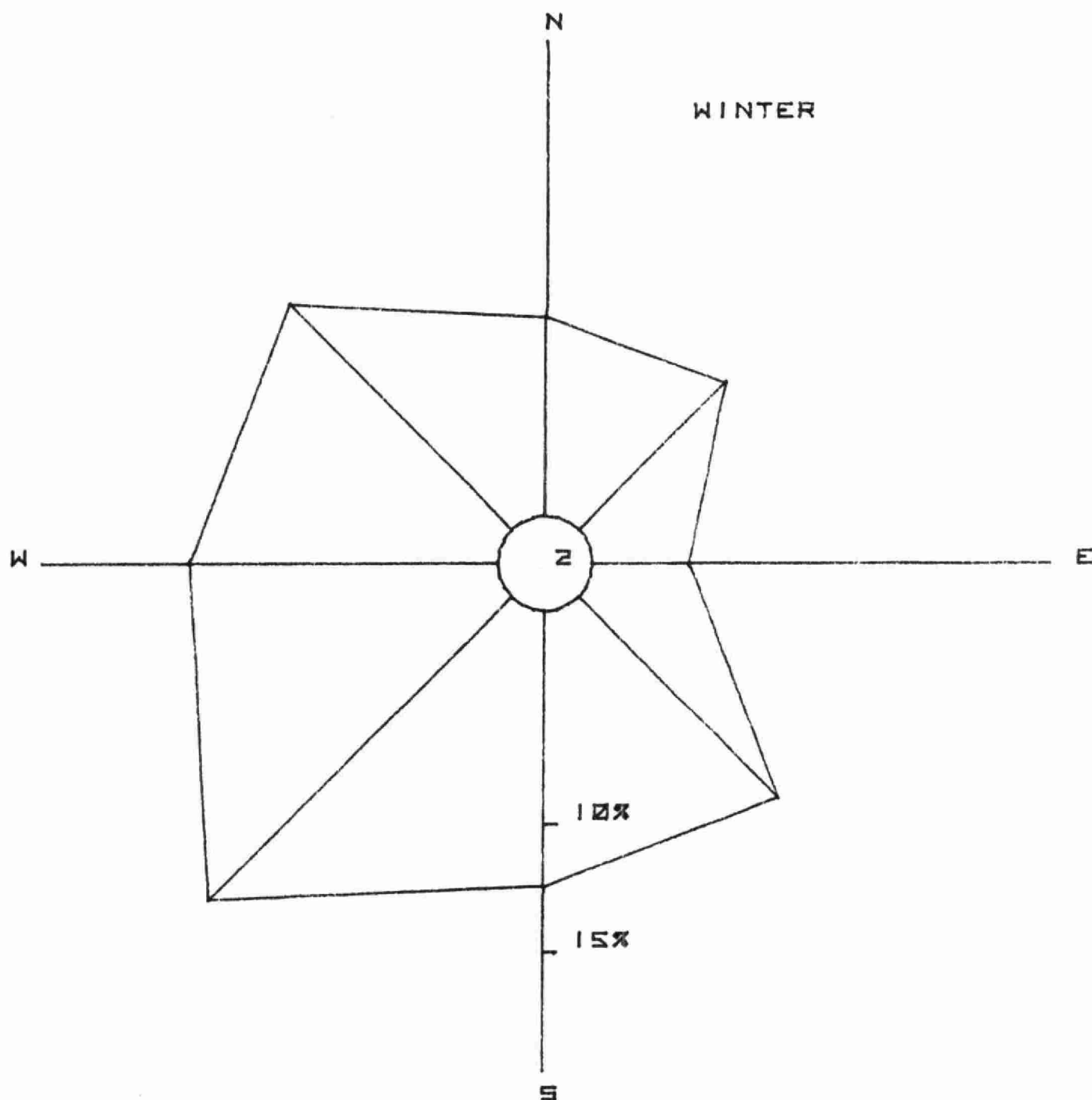
STATION INFORMATION

LOCATED IN FAIRLEY FLAT AREA EXCEPT FOR A NARROW VALLEY 3.2KM E. ANEMOMETER IS BELOW TREES. HEIGHT 13.2M.

PERCENTAGE FREQUENCY

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW CALM

8 4 6 4 5 1 3 2 4 5 11 5 9 6 12 7 8

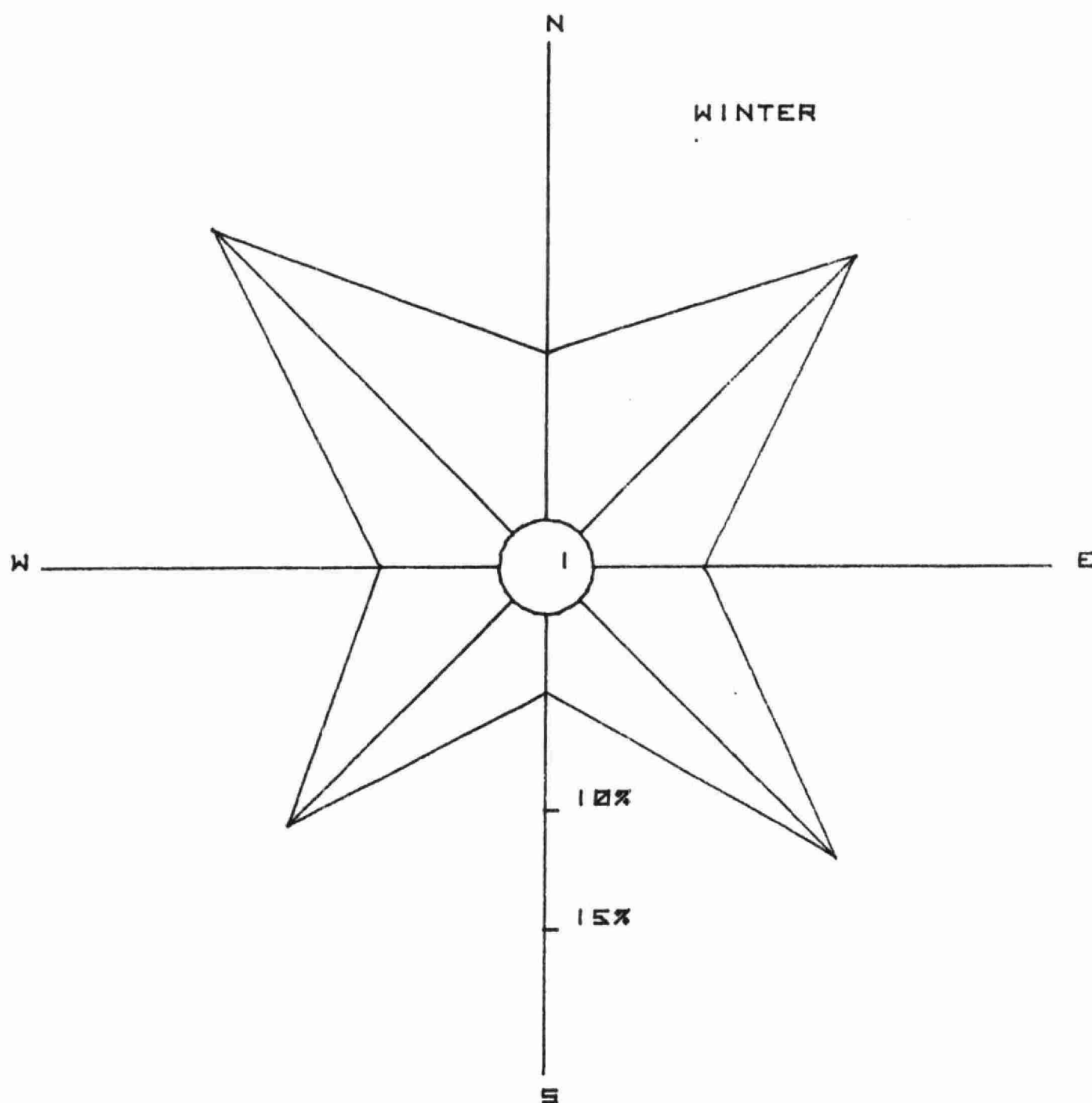


STATION INFORMATION

LOCATED IN ROLLING FARMLAND. NE OBSTRUCTION TO E-NE. HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	10	6	13	13	18	14	14	2



STATION INFORMATION

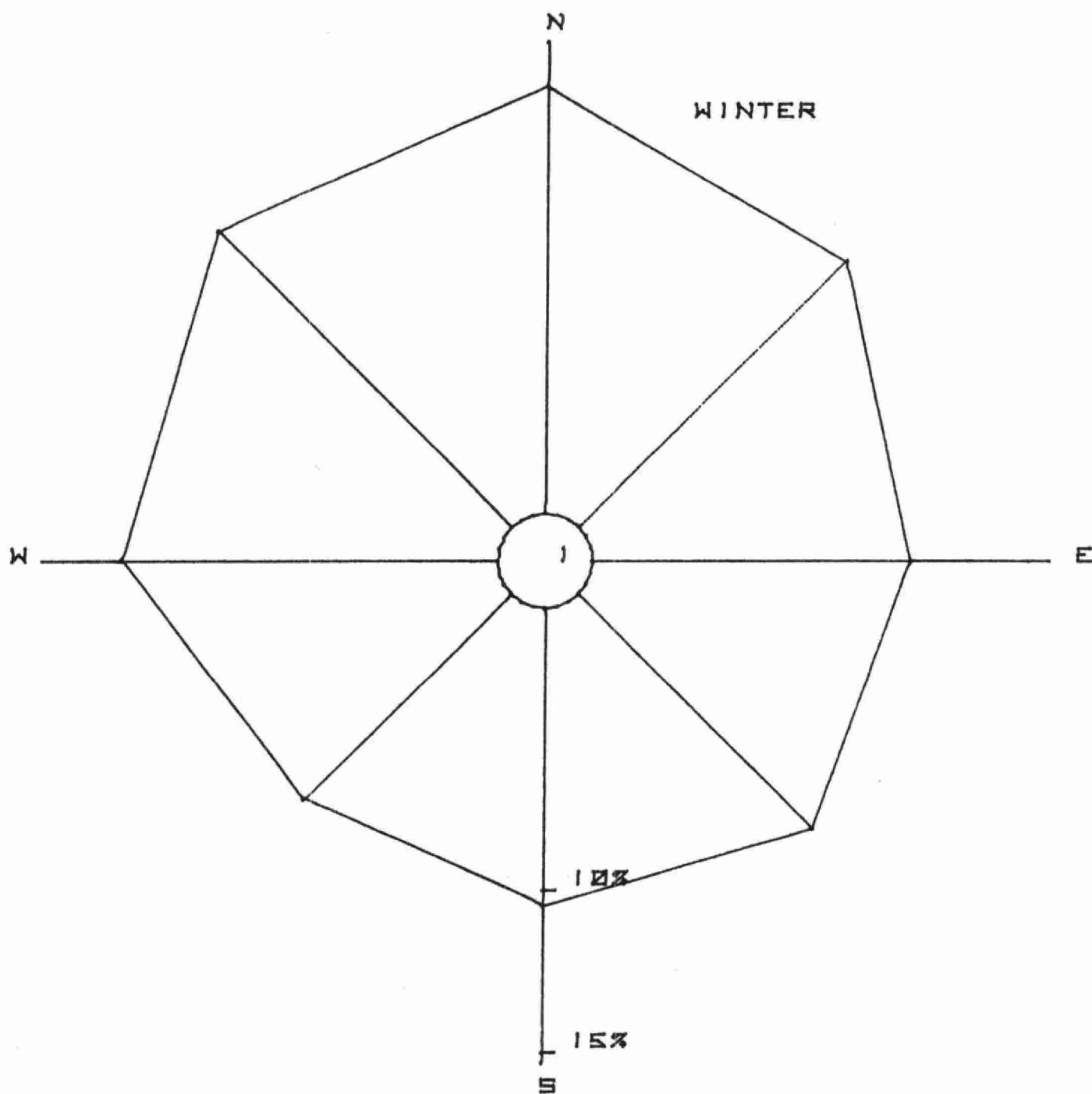
LOCATED IN TOWN. HIGH FORESTED LAND TO THE NW. AREA HILLY. HEIGHT 13.8

PERCENTAGE FREQUENCY

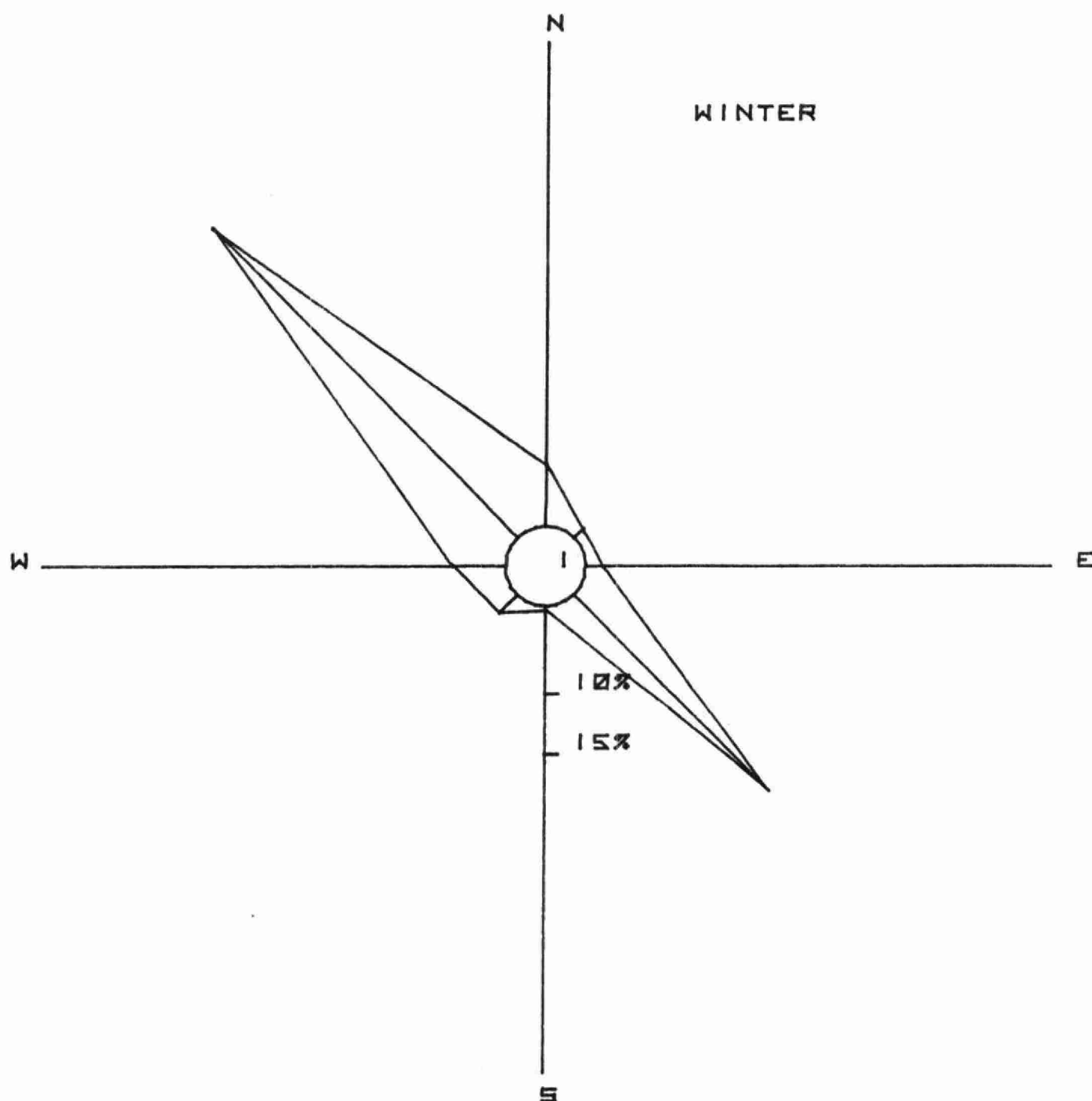
N	NE	E	SE	S	SW	W	NW	CALM
9	18	7	18	5	15	7	20	1

PARRY SOUND (AES) 1937-1949
(BIASES REMOVED)

58



PETAUAWA (AES) 1955-1970

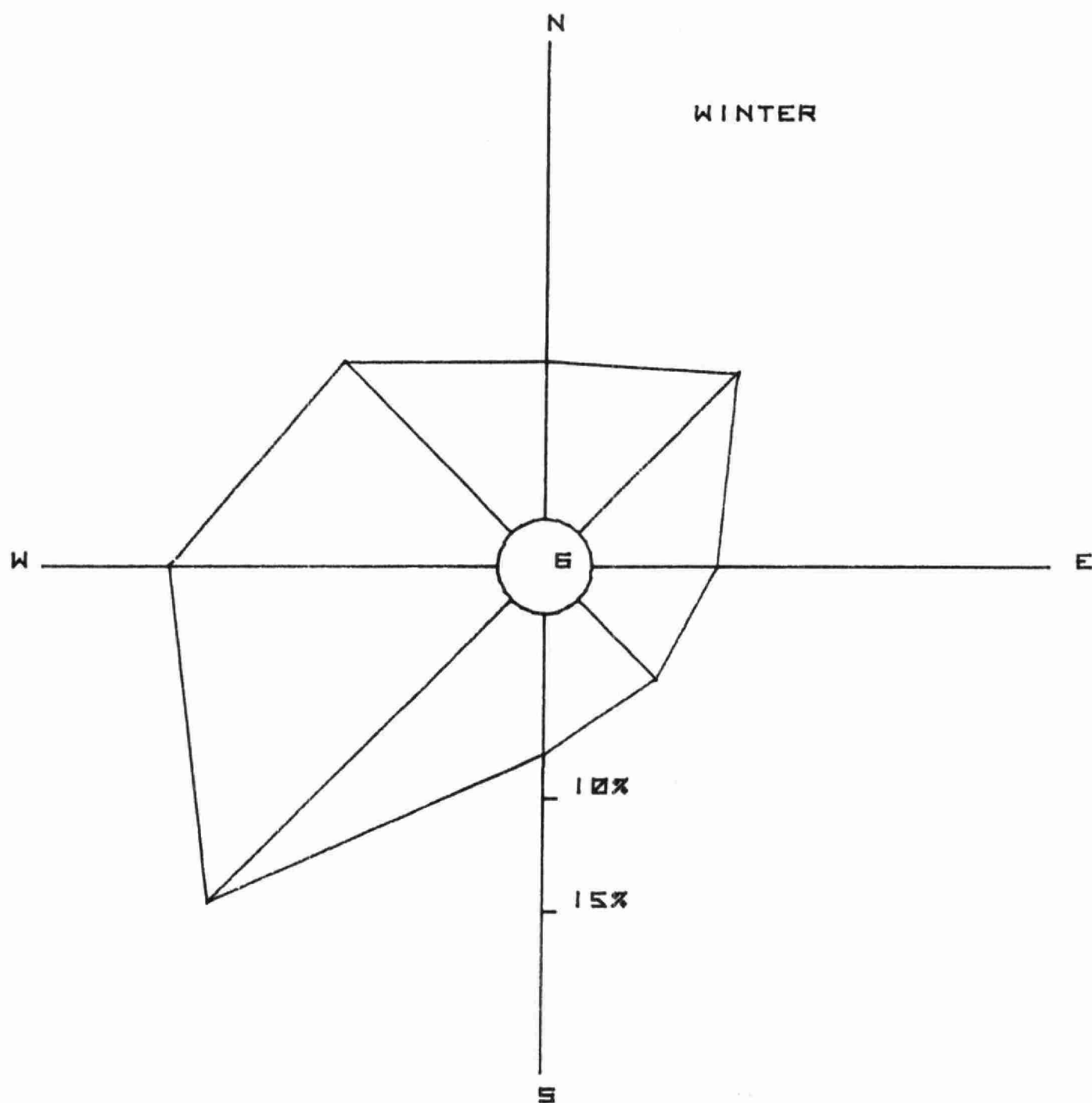


STATION INFORMATION

LOCATED AT DOMINION FORESTRY STN.
 1.5KM S OF TOWN IN SHALLOW E-W VALLEY.
 ROLLING WOODED AREA AROUND STN.
 HEIGHT 30.8M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	4	5	26	4	5	8	39	1

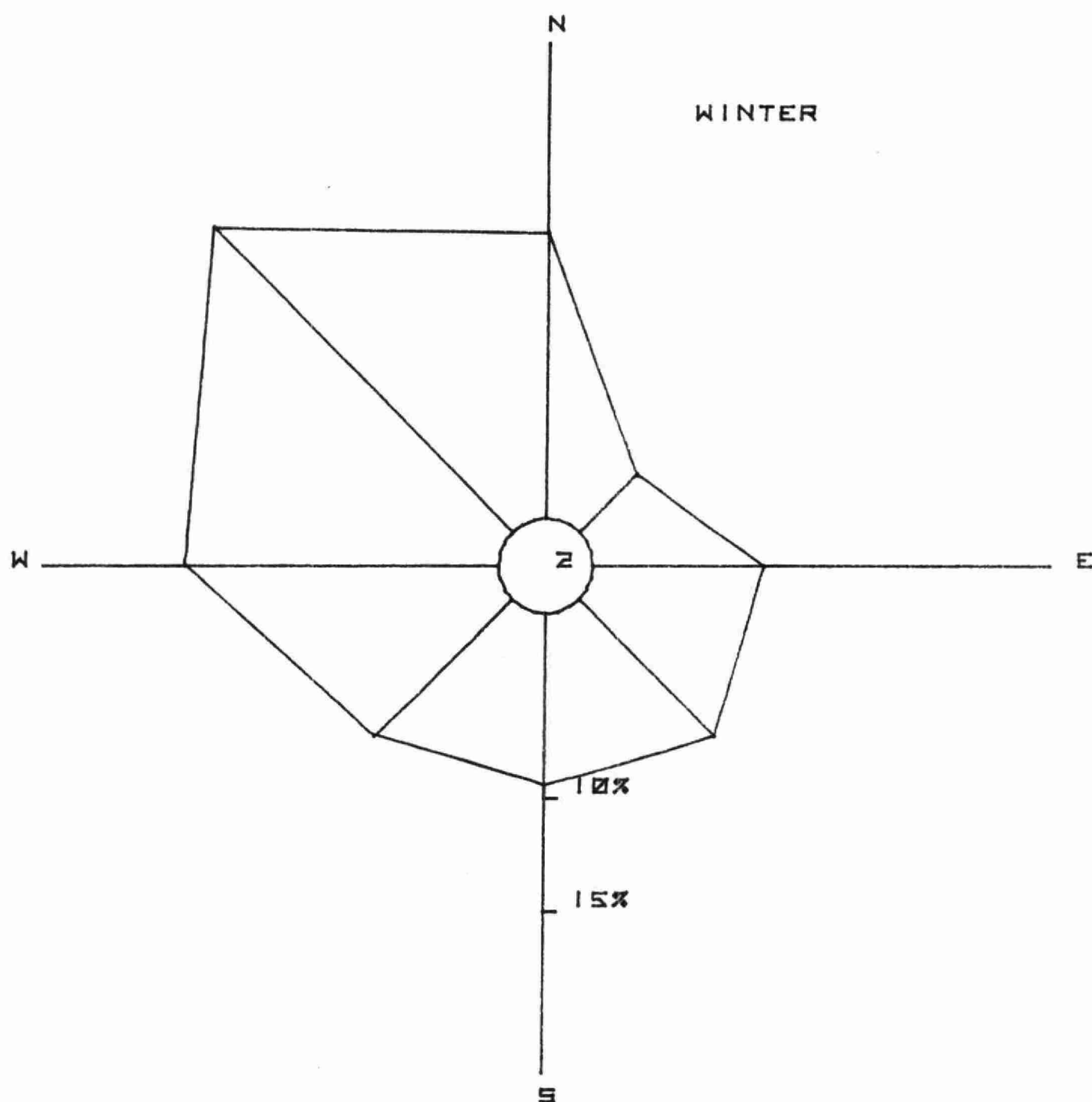


STATION INFORMATION

LOCATED FORESTRY STN PICKLE LAKE LANDING. WELL EXPOSED AREA IS ROCKY AND ROLLING WITH NUMEROUS LAKES AND TREES. HEIGHT 10.5M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
9	12	8	7	8	21	17	12	6



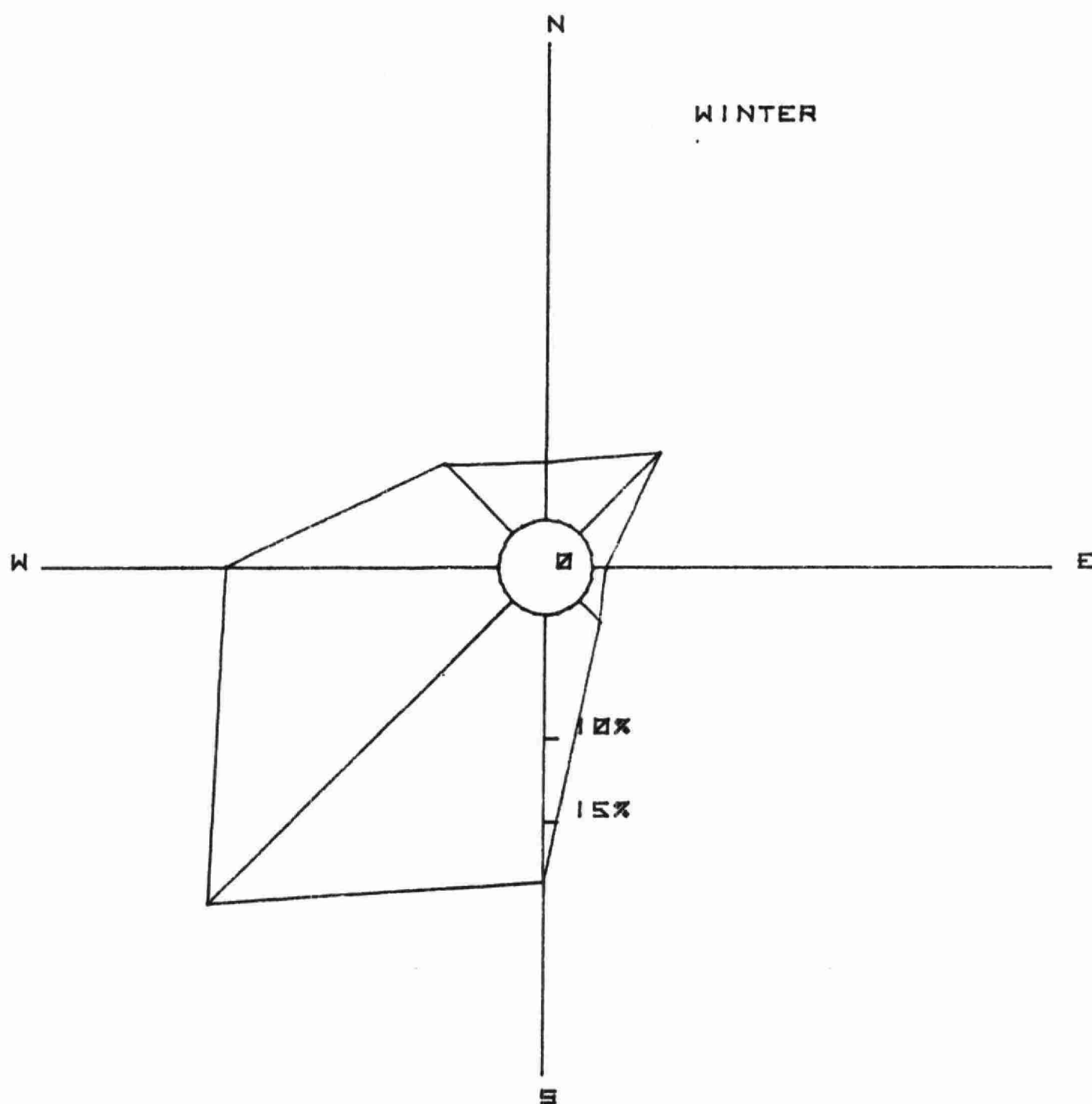
STATION INFORMATION

LOCATED AT AIRPORT IN BUSH COUNTRY, LEVEL WITH SLIGHT HILLS AND RIDGES,
HEIGHT 16.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
15	6	10	11	9	10	16	21	2

No DATA for Winter

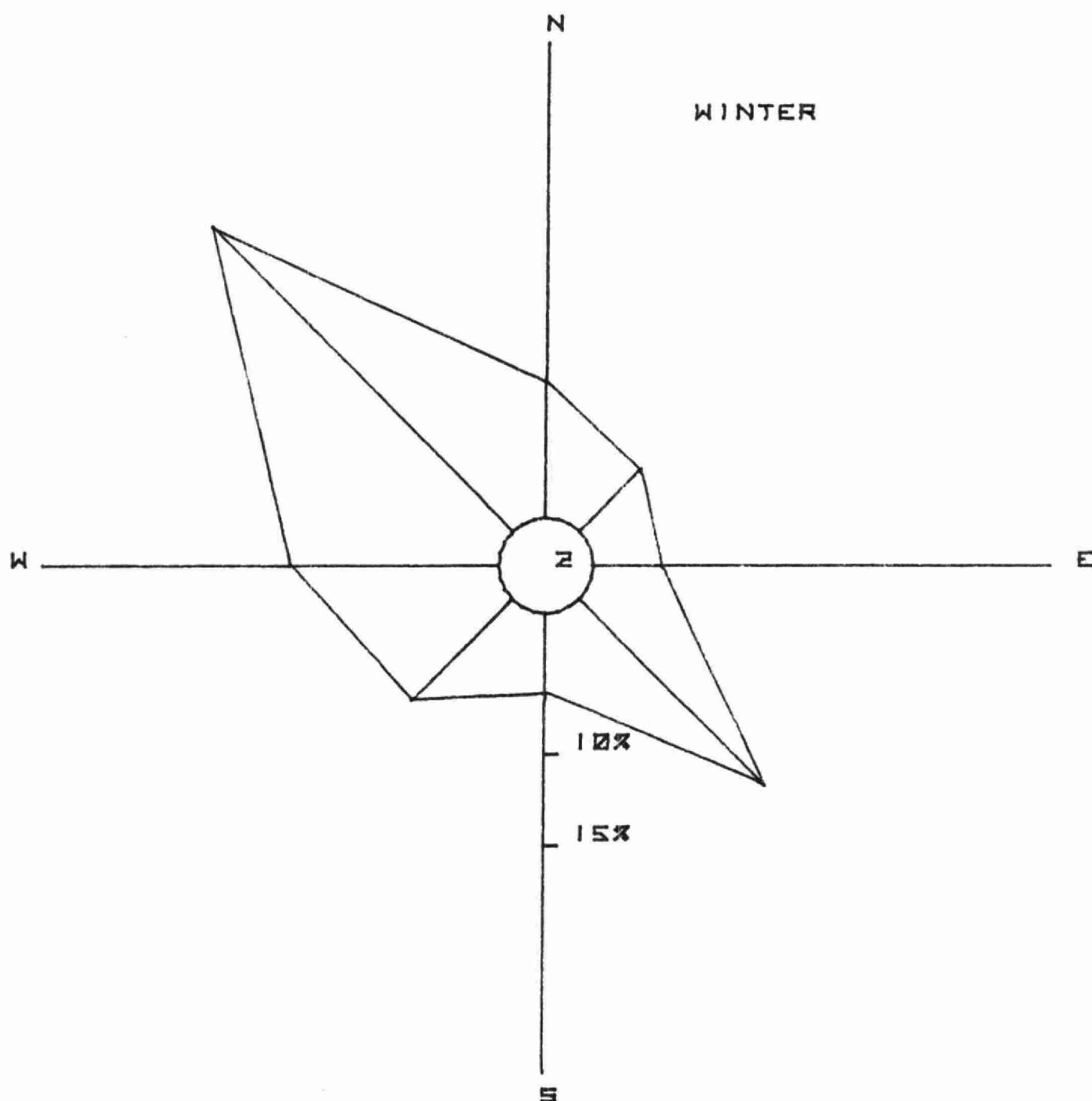


STATION INFORMATION

LOCATED WRAY MINOR RD
HEIGHT 5.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
6	10	4	5	19	29	19	8	0



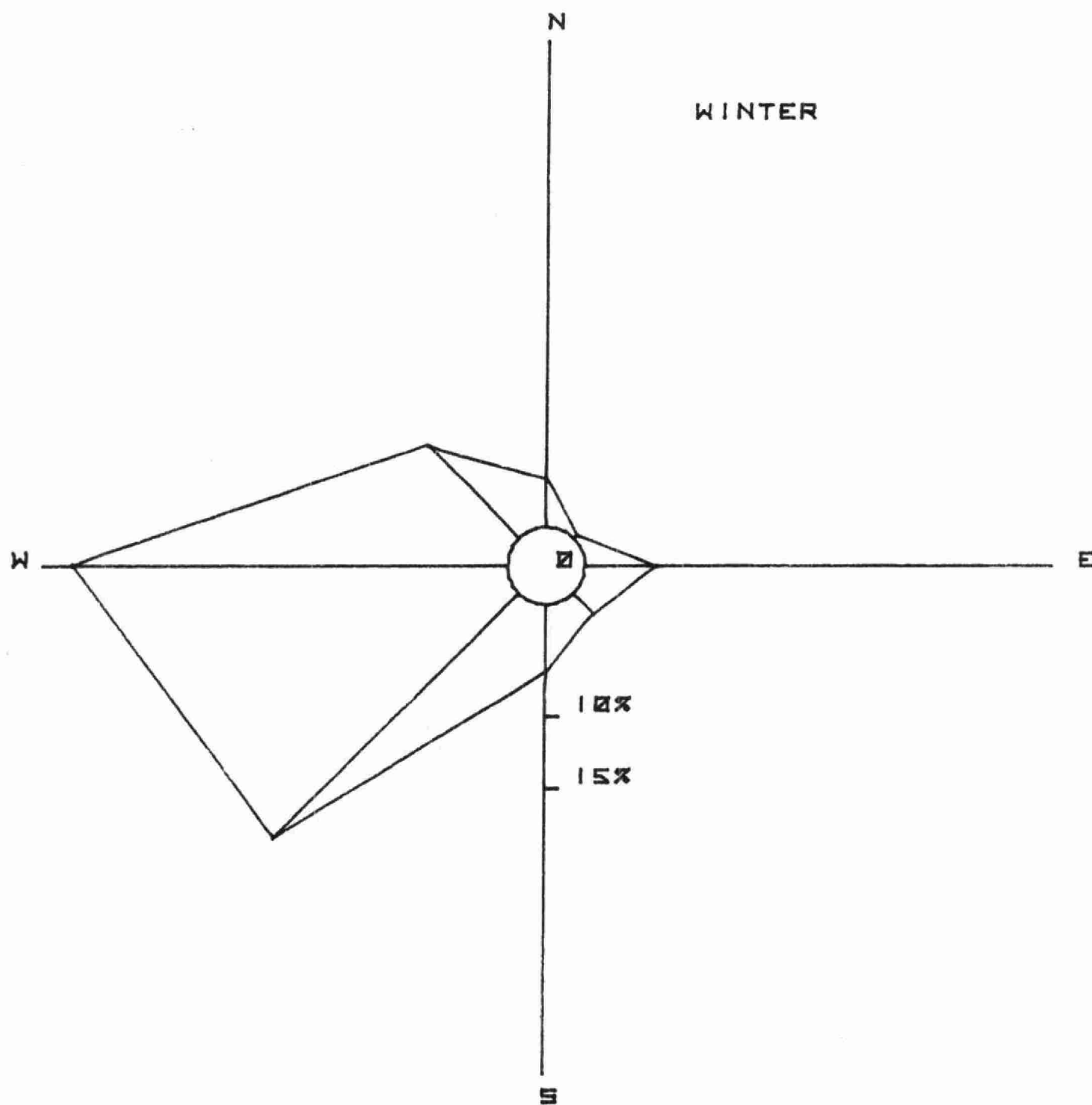
STATION INFORMATION

LOCATED AT COCHENDUR BKM W OF RED LAKE AIRPORT, 4KM N OF TOWN. AREA IS FORESTED WITH MANY LAKES.

HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	8	7	17	7	11	14	26	2

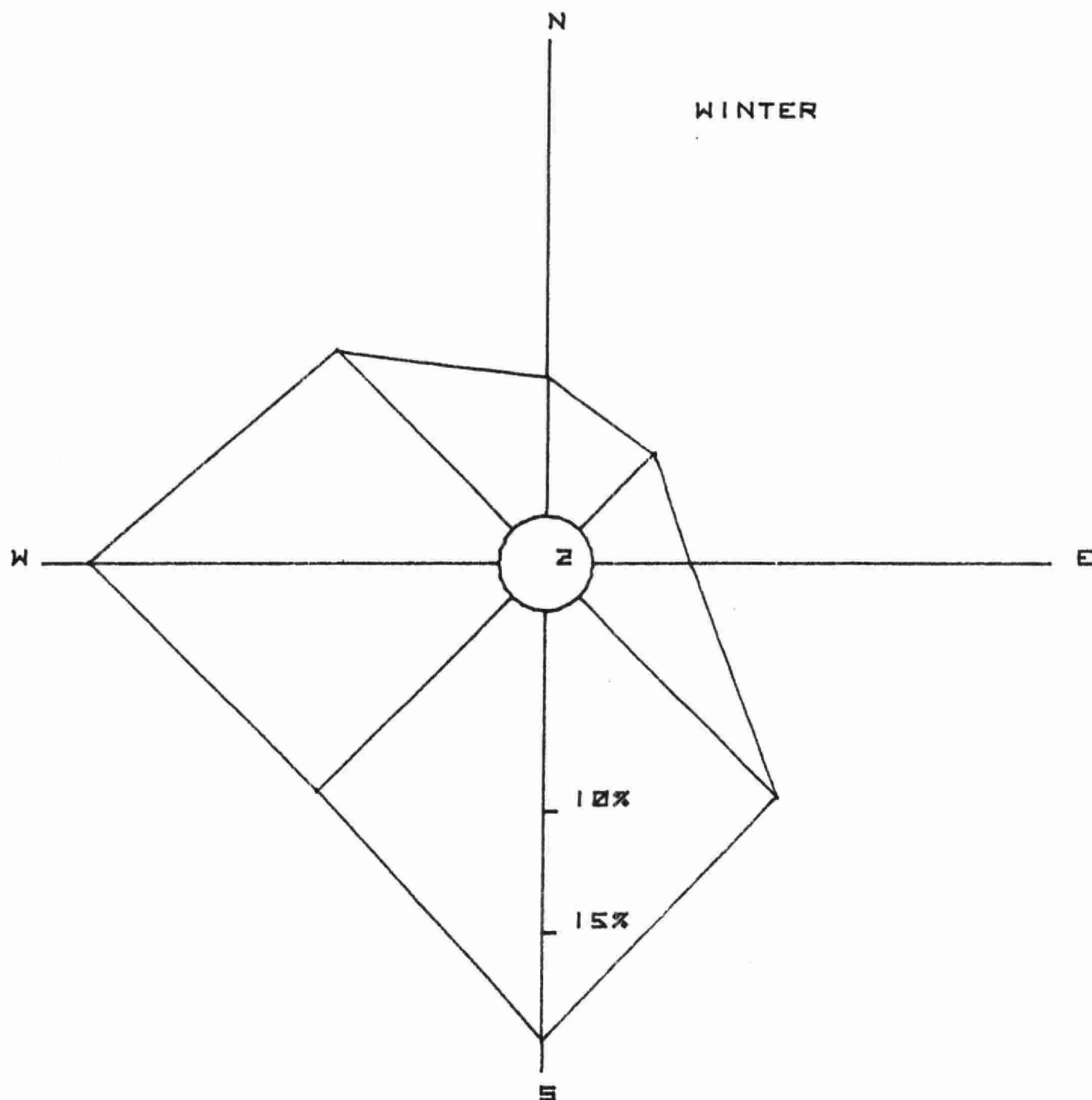


STATION INFORMATION

LOCATED AT FERN FORD
1012 TALBOT ST.
HEIGHT 5.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
6	3	8	5	7	27	33	11	0

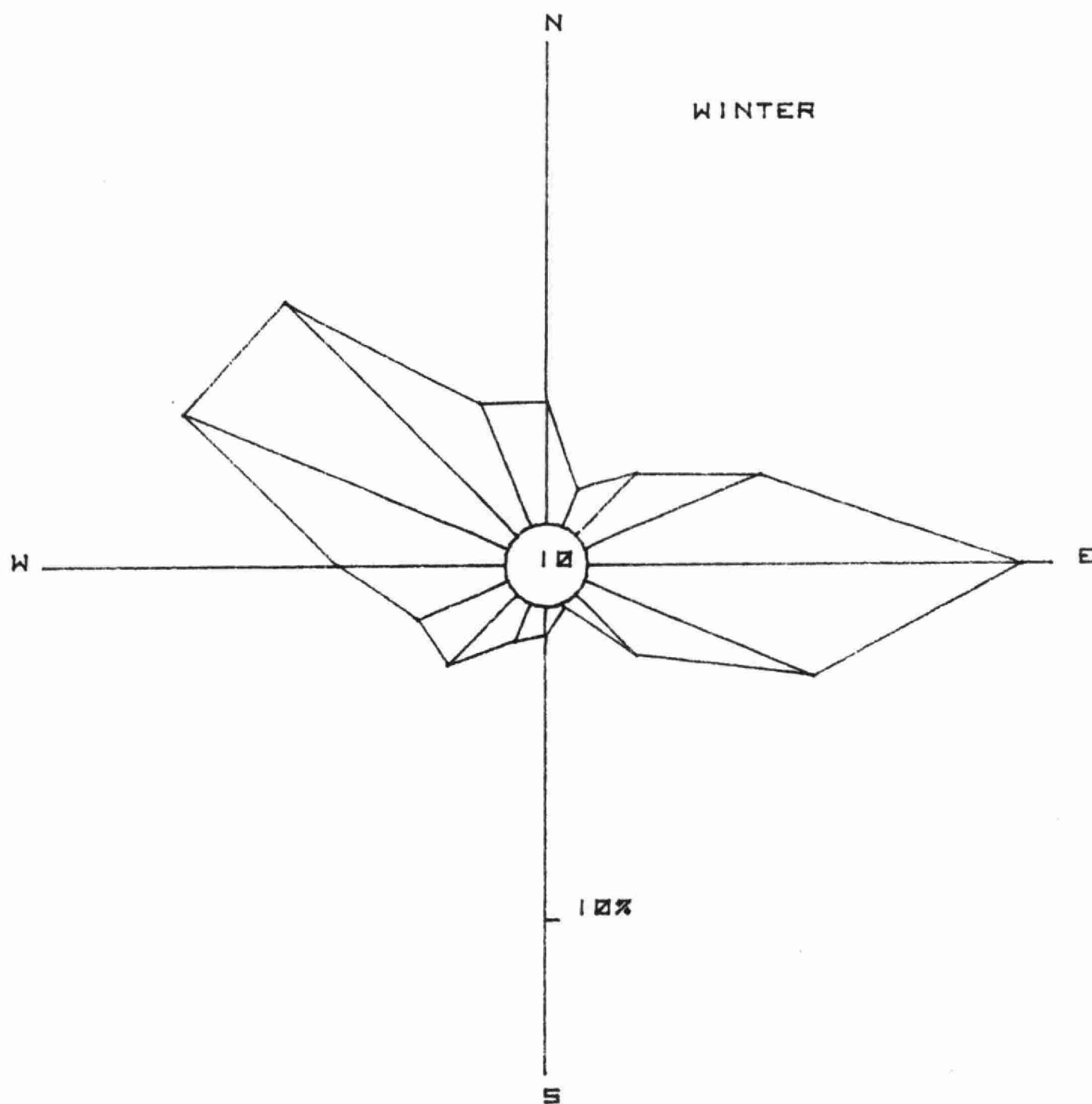


STATION INFORMATION

LOCATED AT RADIO RANGE STN.
11.2KM SE OF TOWN CENTRE
HEIGHT 10.8M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	6	6	14	19	13	19	12	2



STATION INFORMATION

LOCATED AT AIRPORT IN FLAT COUNTRY. APPROX 6.4KM TO THE N IS A RIDGE OF HILLS. 3.8KM TO W IS LAKE SUPERIOR. HEIGHT 12.5 M

PERCENTAGE FREQUENCY

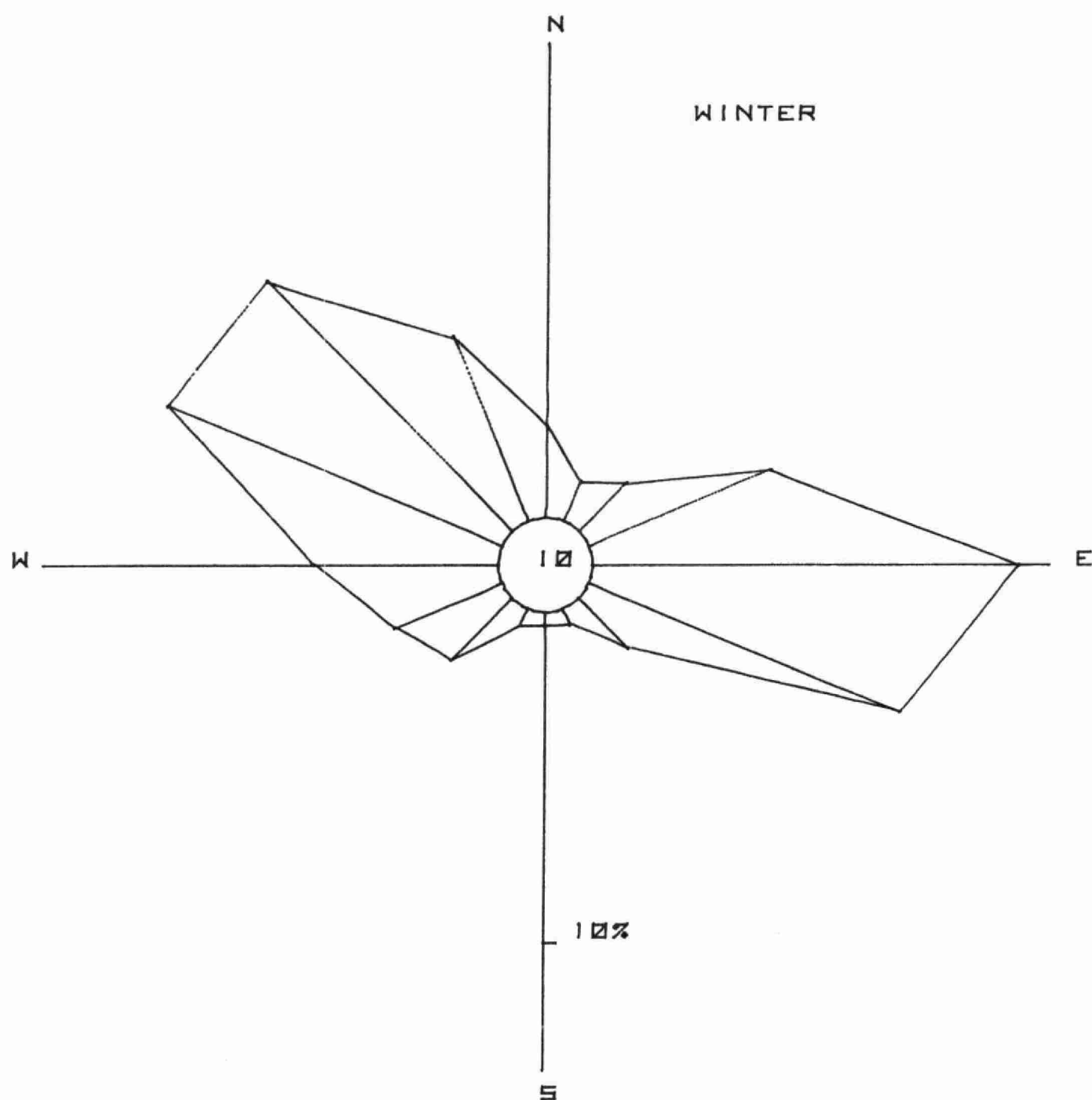
N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW CALM

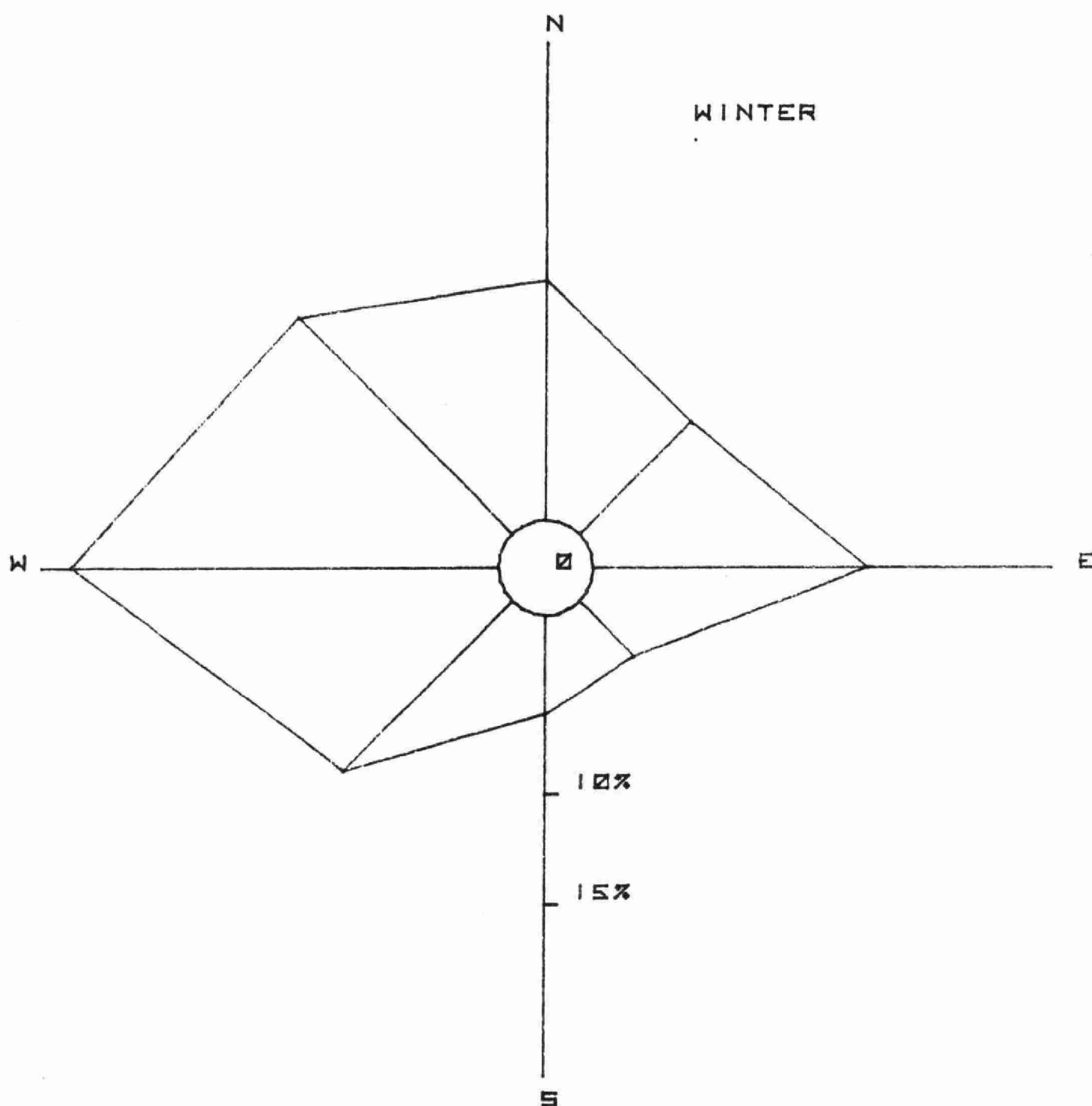
5 2 4 7 14 8 4 1 2 2 4 4 6 11 11 5 10

SAULT STE MARIE (AES) 1961-1972

68

(BIASES REMOVED)



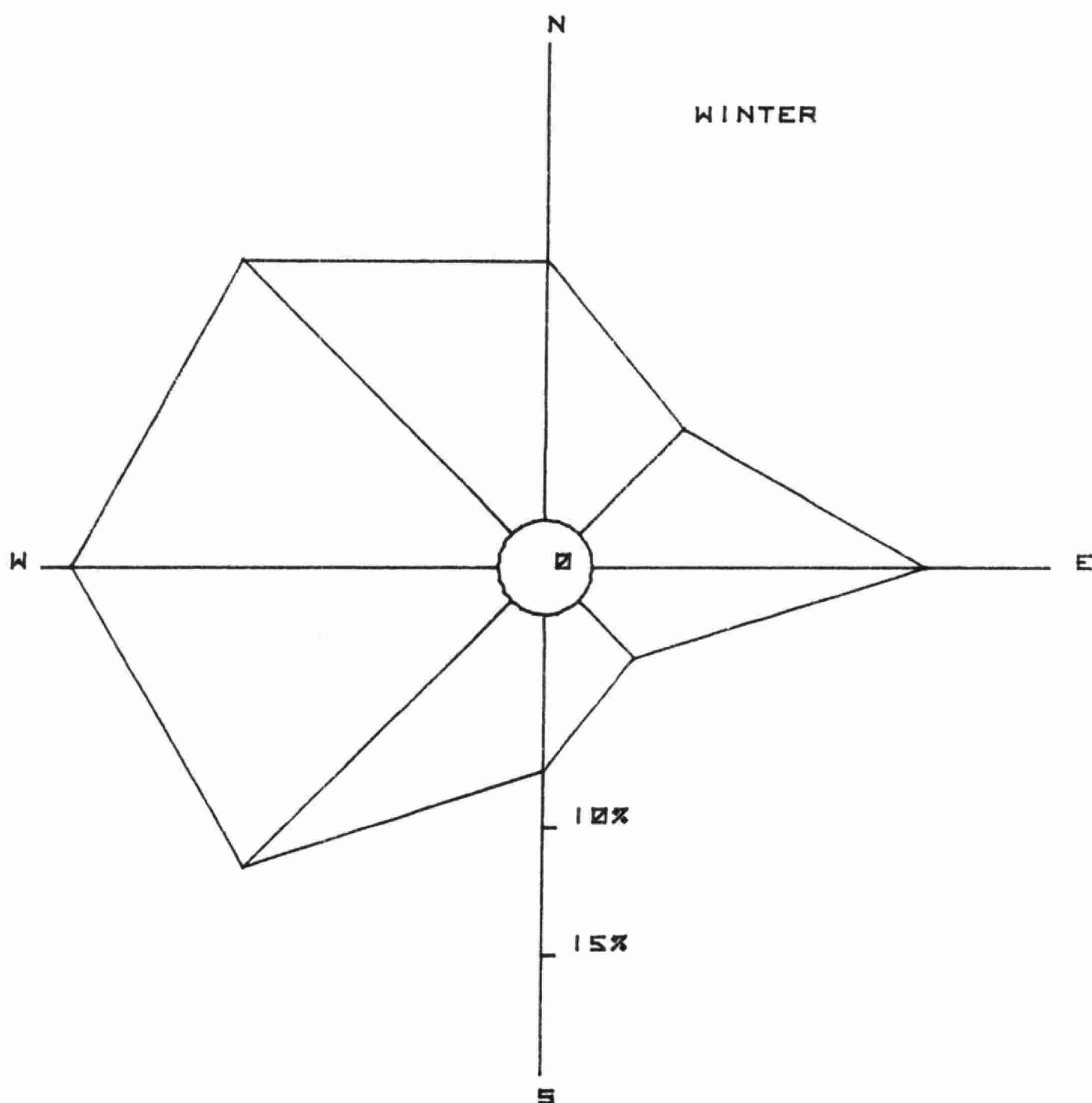


STATION INFORMATION

LOCATED AT LAWRENCE/KENNEDY IN SCARBOROUGH
HEIGHT 10.1m

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
13	9	15	6	7	13	21	16	0

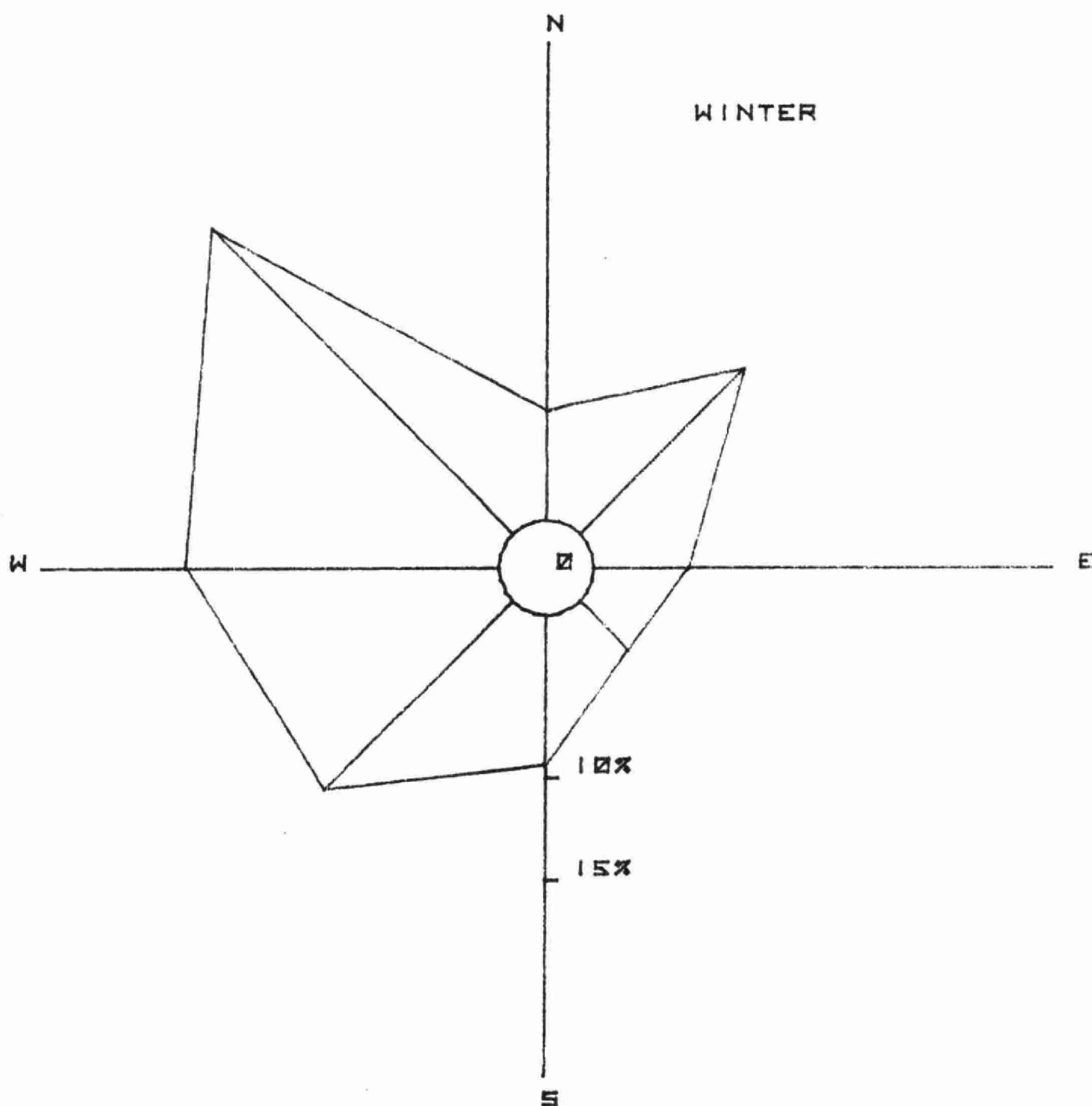


STATION INFORMATION

LOCATED AT LAWRENCE/KENNEDY IN SCARBOROUGH HEIGHT 61.6M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
12	8	15	5	8	17	18	17	0

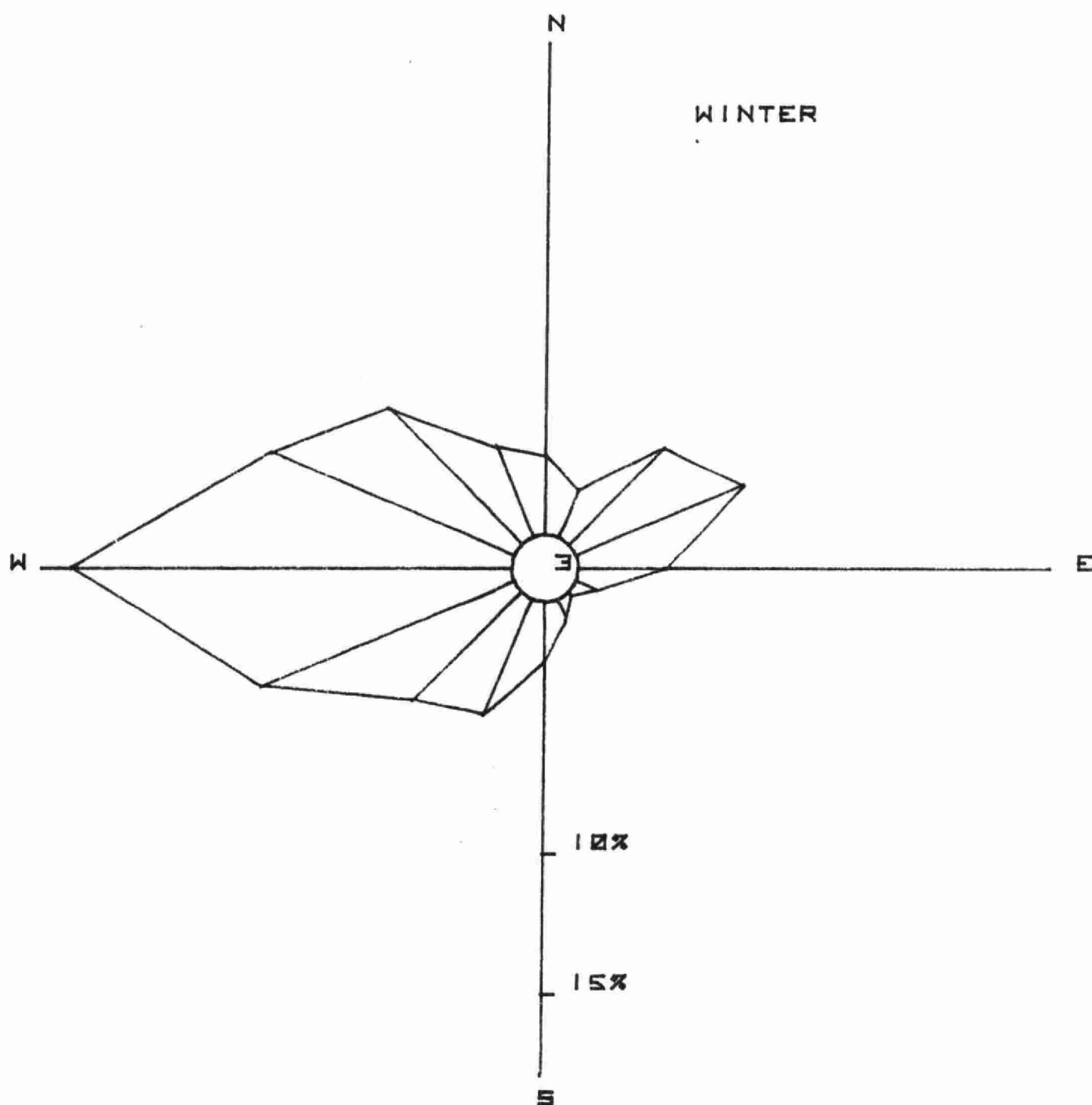


STATION INFORMATION

LOCATED AT OLIVER MOWATT PS IN SCARBOROUGH
HEIGHT 13.8 M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	14	7	6	10	15	17	23	0

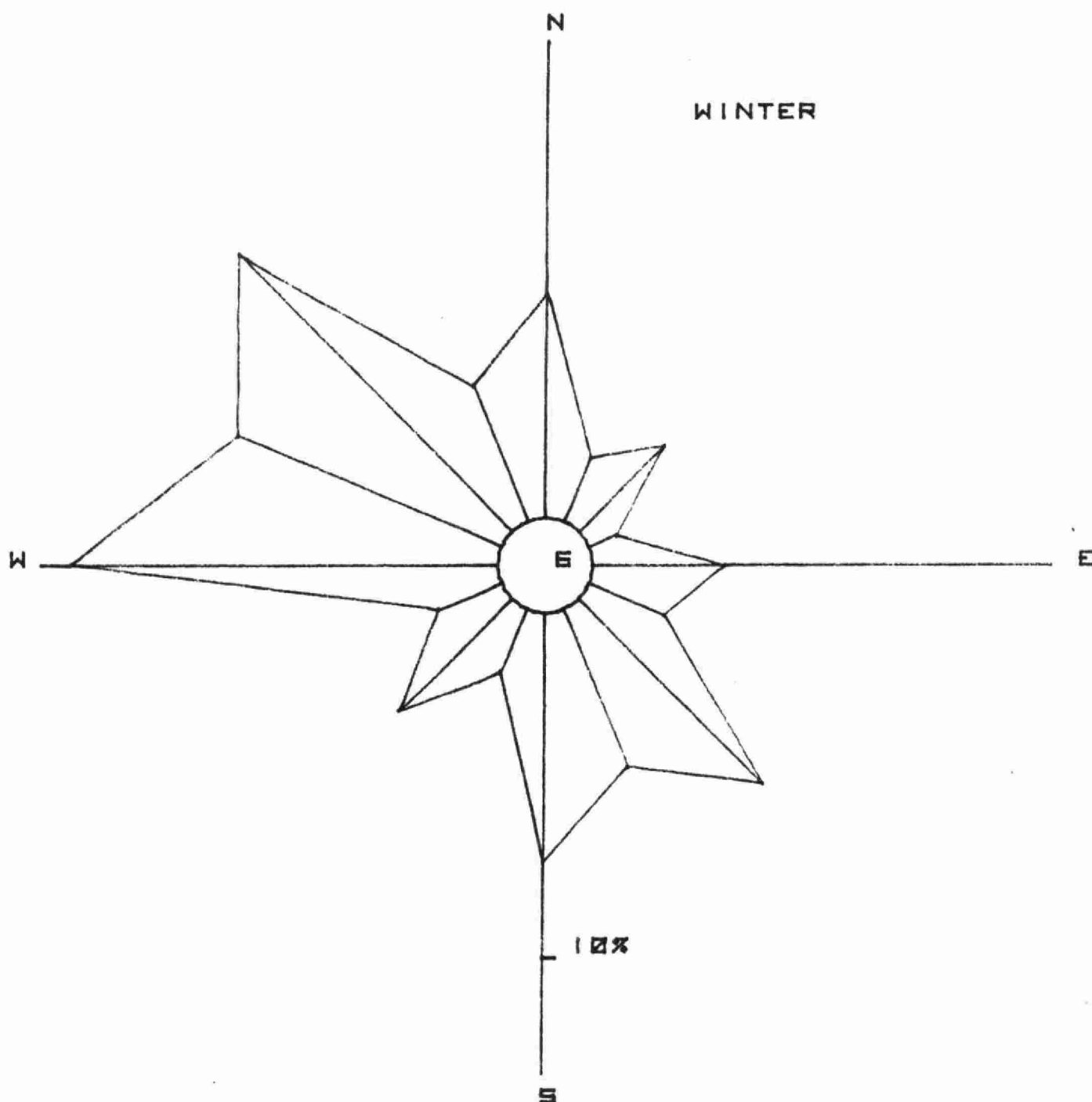


STATION INFORMATION

LOCATED AT HORTICULTURE EXPERIMENTAL FARM 4 KM E-NE OF TOWN ON
HIGHWAY 3. NO OBSTRUCTIONS. HEIGHT 10.2 M.

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
4	3	6	8	4	2	1	2	3	6	7	11	17	11	8	4	3



STATION INFORMATION

LOCATED 2.8 KM TO N OF SIOUX LOOKOUT. ANEMOMETER IS ATTACHED TO 20 M BEACON TOWER. AREA IS HILLY AND HEAVILY TREED WITH MANY LAKES. HEIGHT 10.2 M

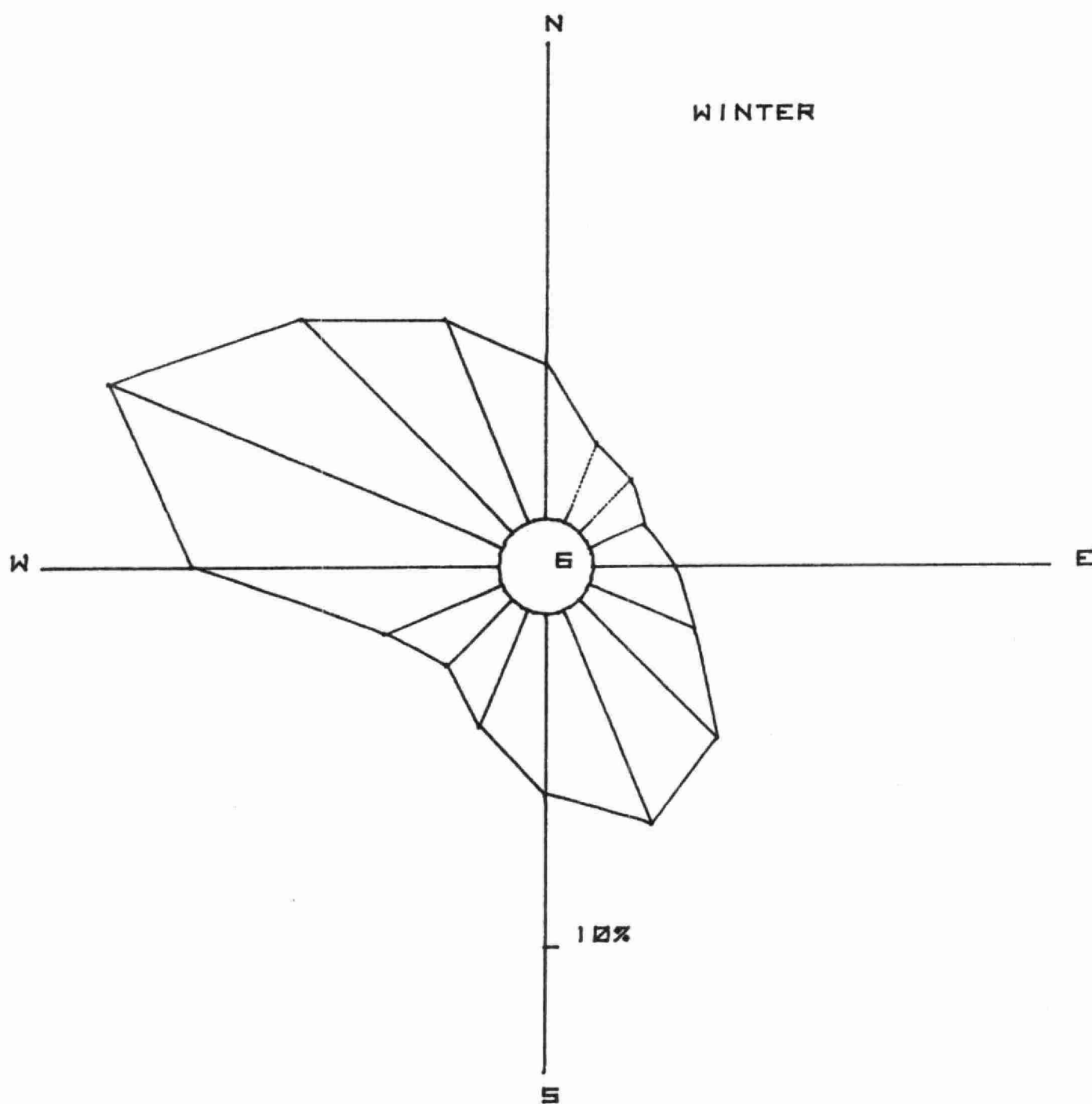
PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
7	3	4	2	5	3	8	6	8	3	5	3	12	9	11	5	6

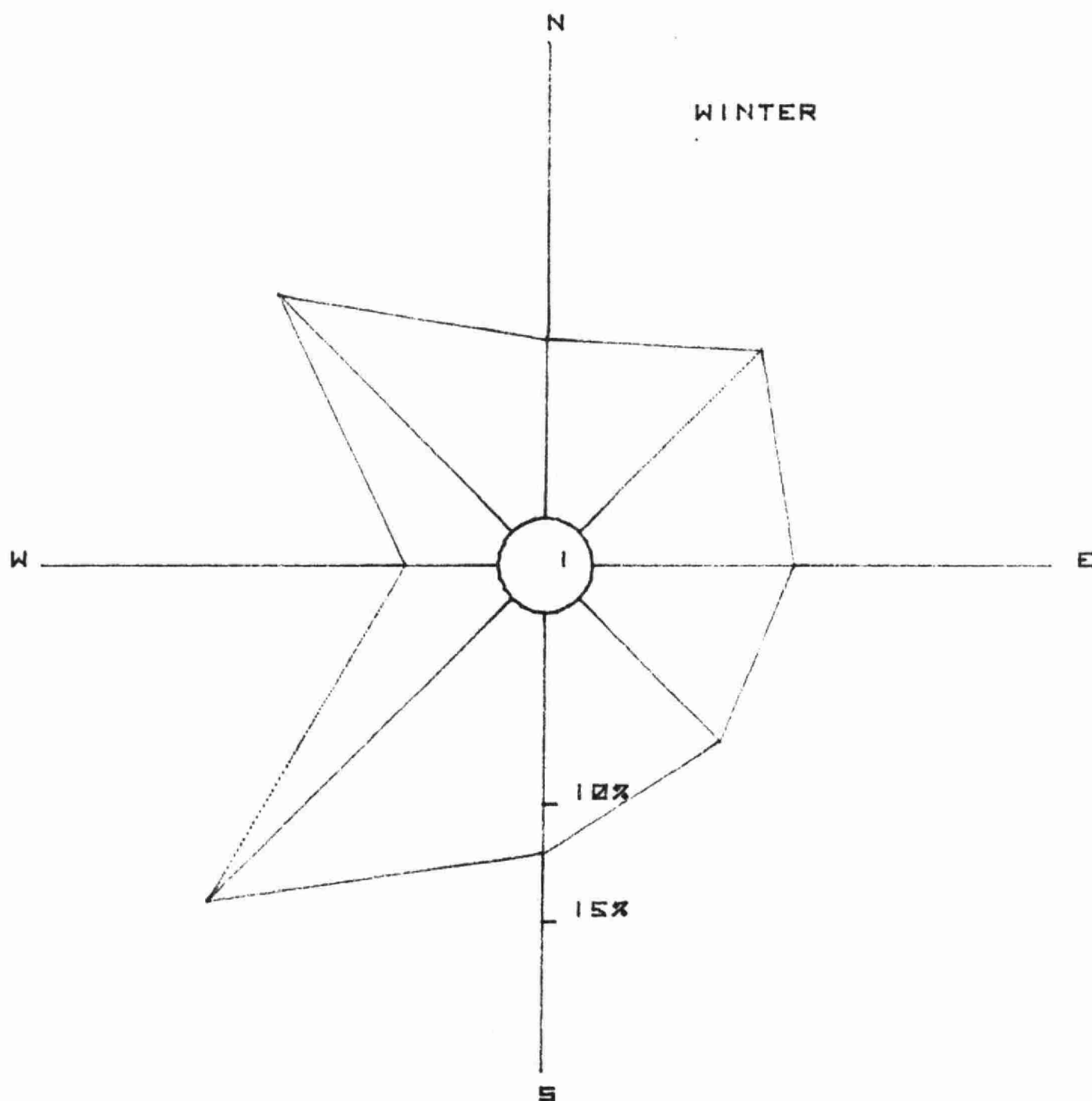
SIOUX LOOKOUT (AES) 1955-1972

73

(BIASES REMOVED)



No DATA for Winter

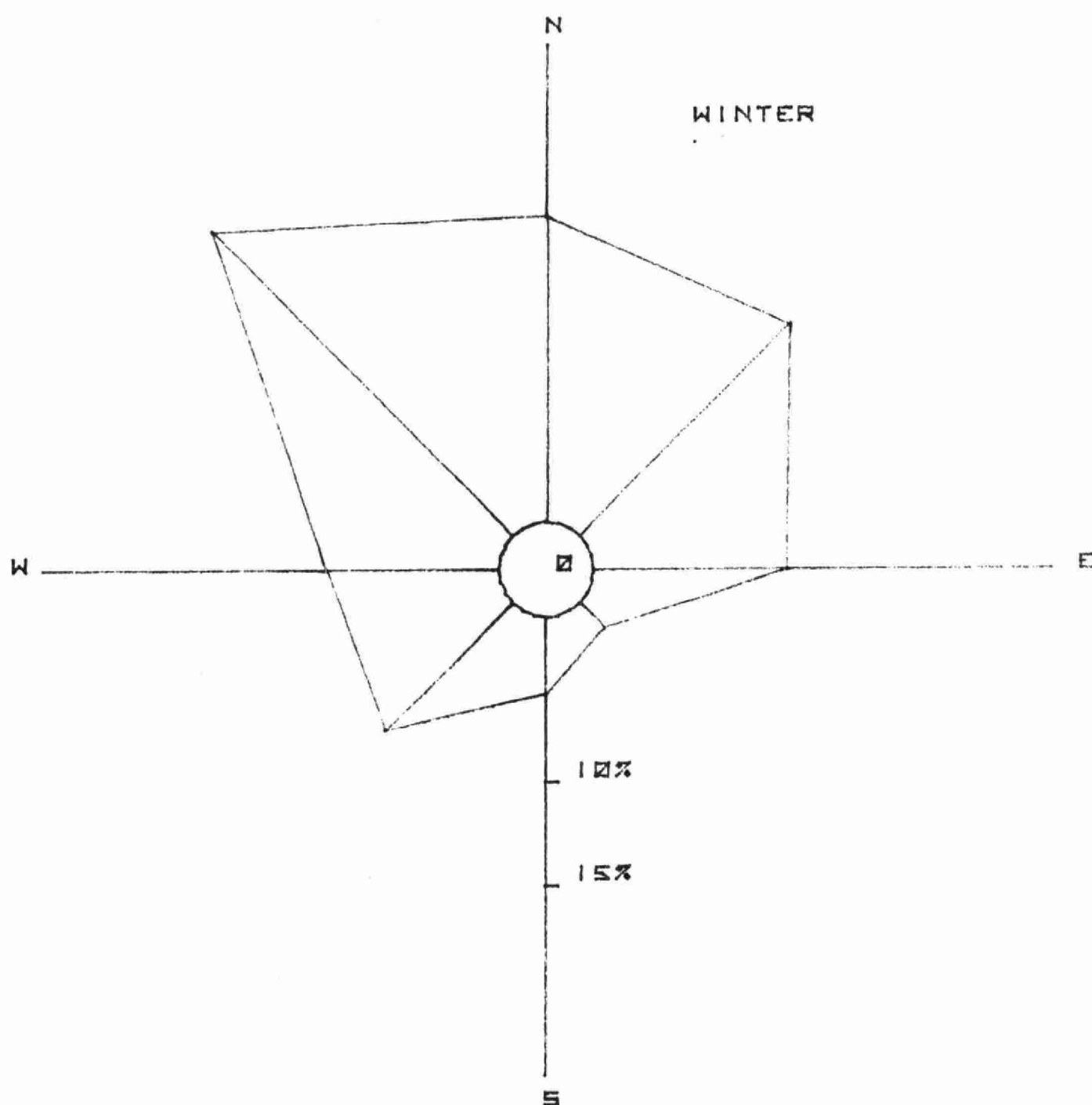


STATION INFORMATION

LOCATED S BANK SAUGEEN RIVER N END OF TOWN. AREA FLAT TO SW,
ROLLING TO E AND N. OBSTRUCTIONS TO SSE WITH TREES SAME HEIGHT AS
ANEMOMETER HEIGHT 10.8m

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	13	11	11	12	20	6	16	1

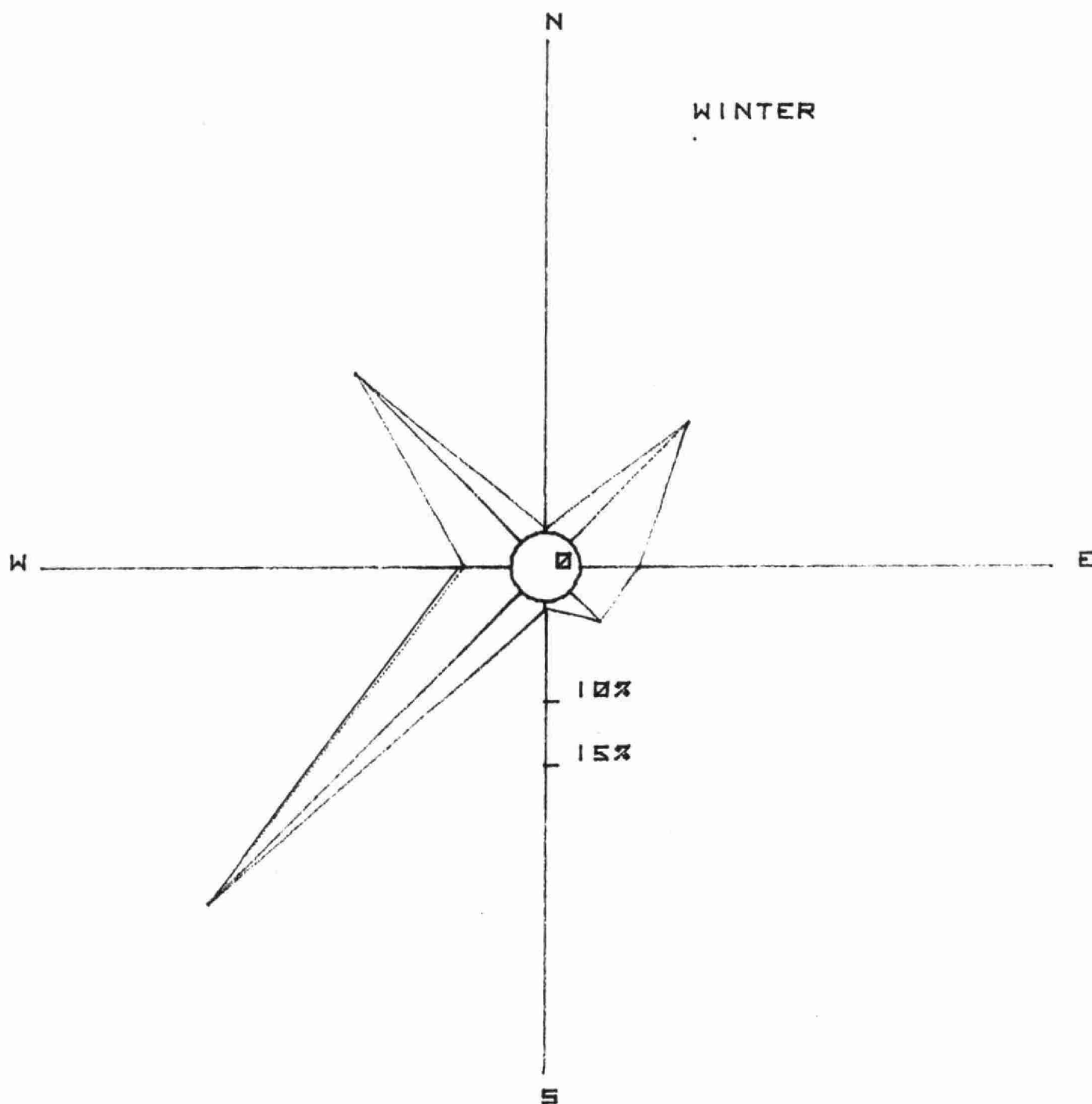


STATION INFORMATION

LOCATED AT LANDS AND FOREST STN WOODED RIDGE NW OF STATION. E AND S EXPOSURES ON SOUTH BAY. SHELTERING FROM W AND N. HEIGHT 24.5M.

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
17	17	12	4	6	11	10	23	0



STATION INFORMATION

LOCATED OUTSIDE N LIMITS OF CITY IN FRUIT FARM AREA.
HEIGHT 11.4m

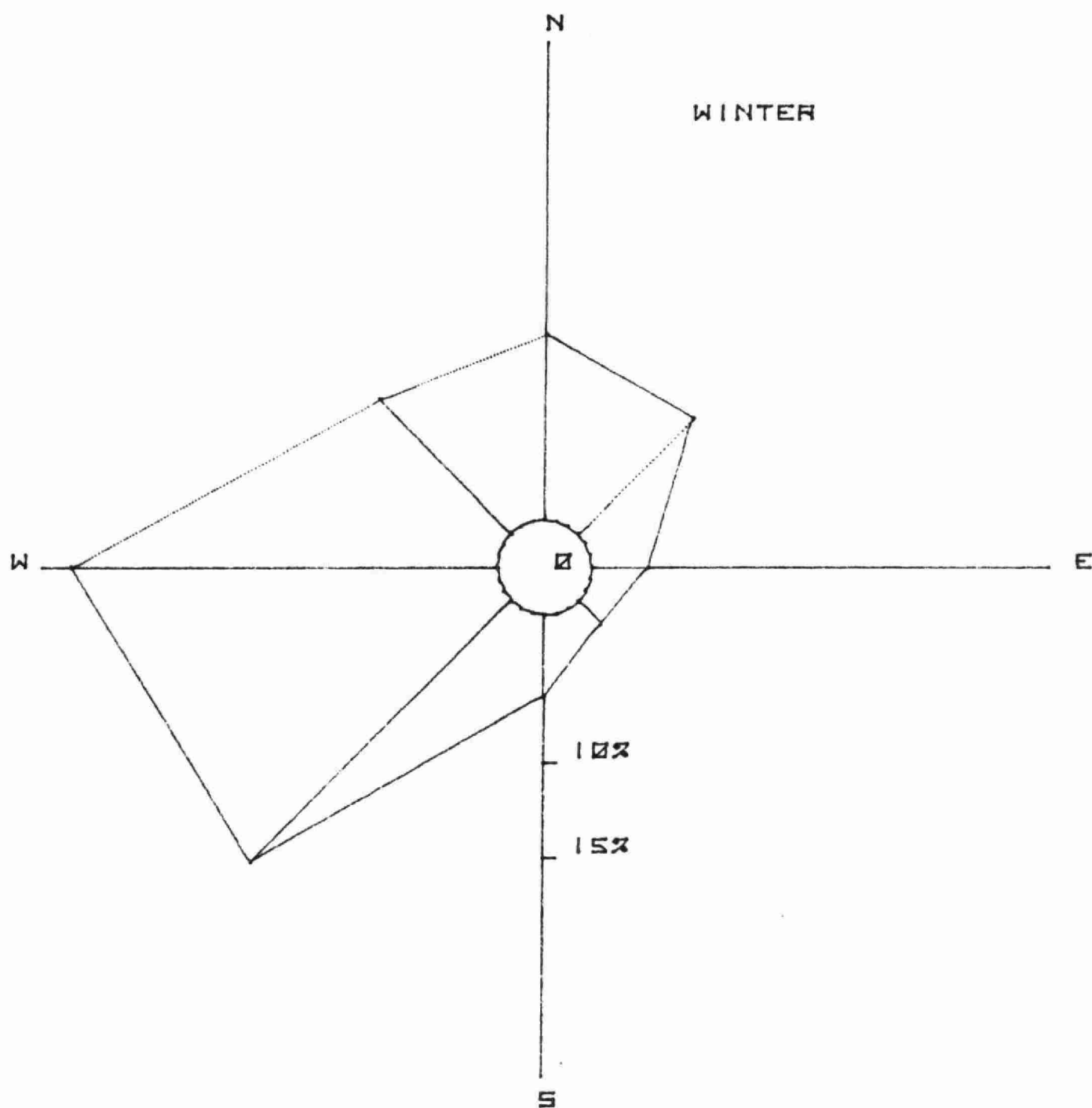
PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
3	16	7	6	3	37	6	21	1

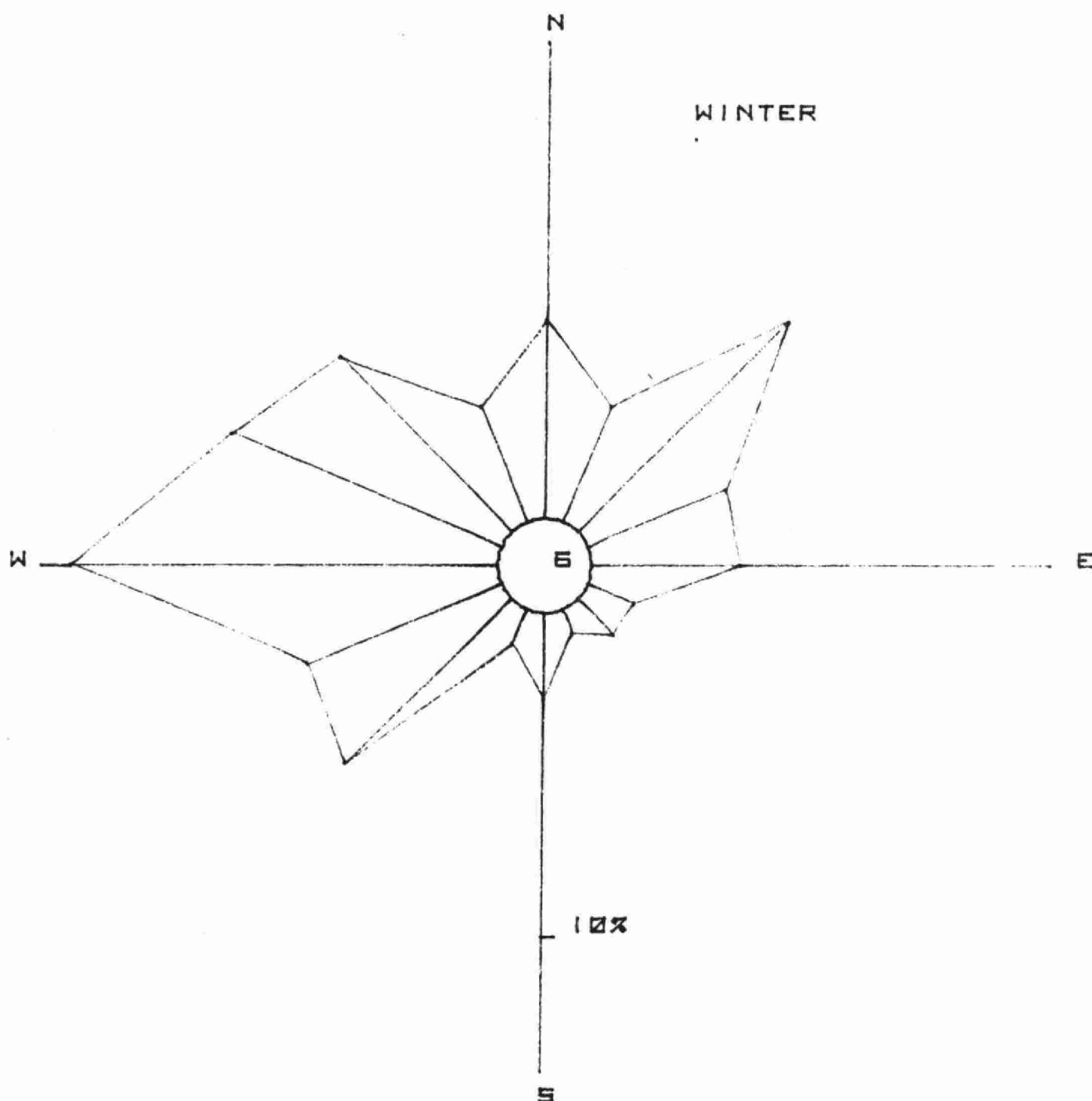
ST. CATHARINES (AES) 1955-1964

(BIASES REMOVED)

77



STIRLING (AES) 1955-1968



STATION INFORMATION

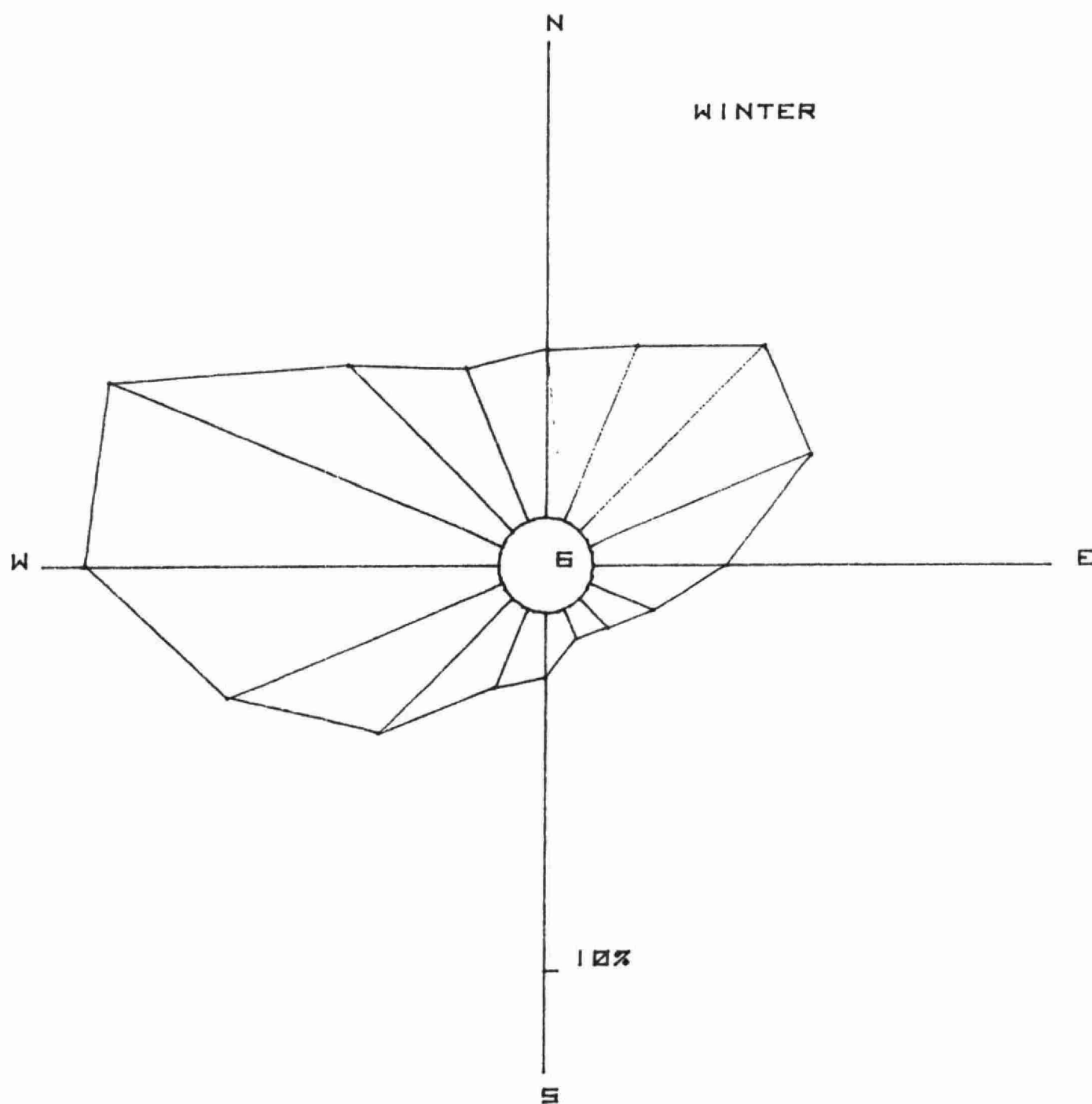
LOCATED 7.2KM W-NW OF STIRLING ON CONCESSION RD N OF MAIN RD.
 ROLLING COUNTRY IN ALL DIRECTIONS. TREES 45M HIGH OBSTRUCTS TO W.
 HEIGHT 14.2M

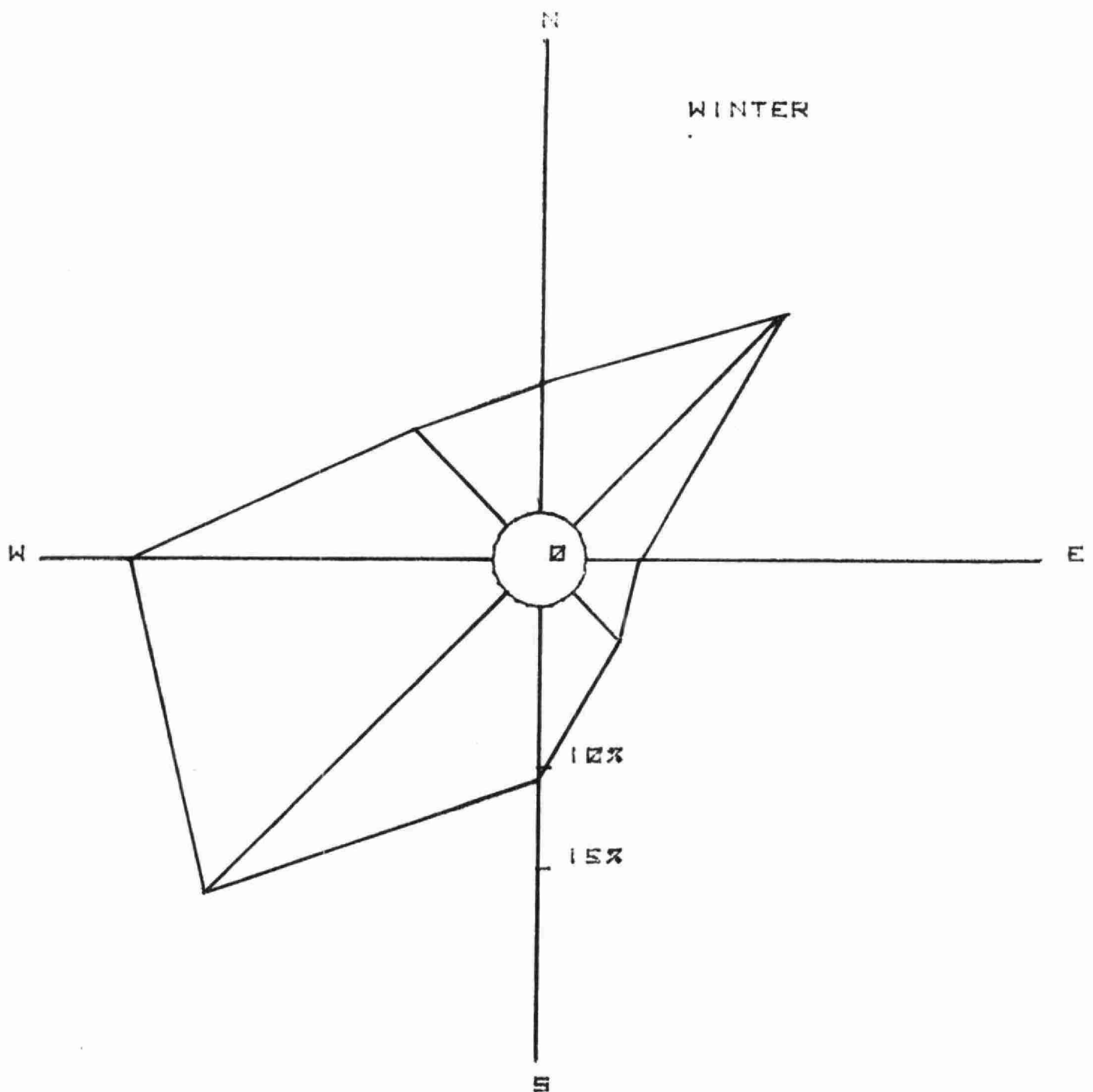
PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
7	5	9	5	5	3	2	2	4	2	8	7	13	9	8	5	6

STIRLING (AES) 1955-1968
(BIASES REMOVED)

78



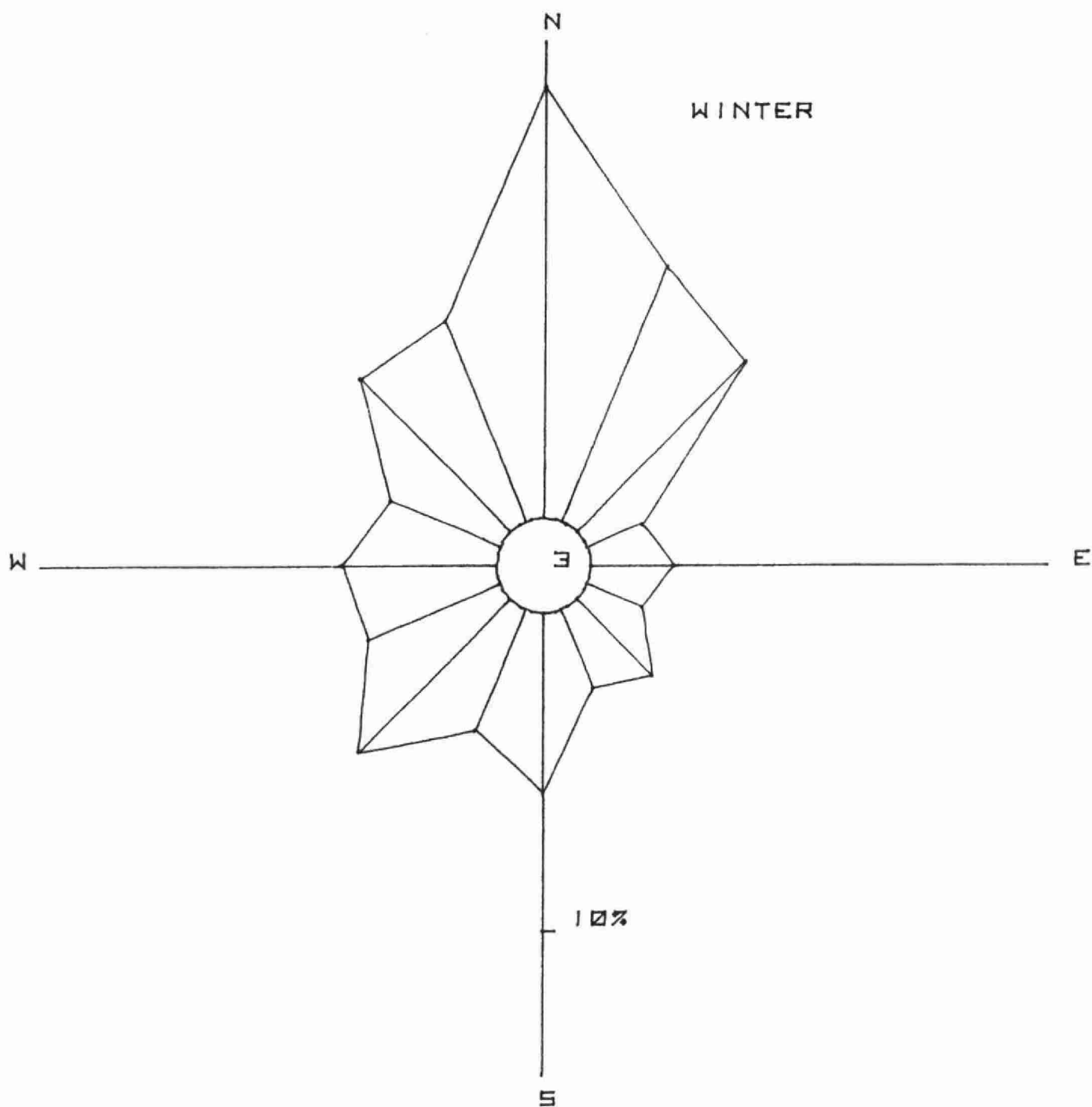


STATION INFORMATION

LOCATED ON J TENNYSON'S PROPERTY GRID REFERENCE 06136-47476
 HEIGHT 10.1m

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
9	17	5	6	11	23	20	9	0



STATION INFORMATION

LOCATED 24 KM NE OF CITY ON PLATEAU VALLEY THAT IS 16 KM LONG
ABOUT 4.6 KM W. COUNTRY IS ROLLING. HEIGHT 10.2 M

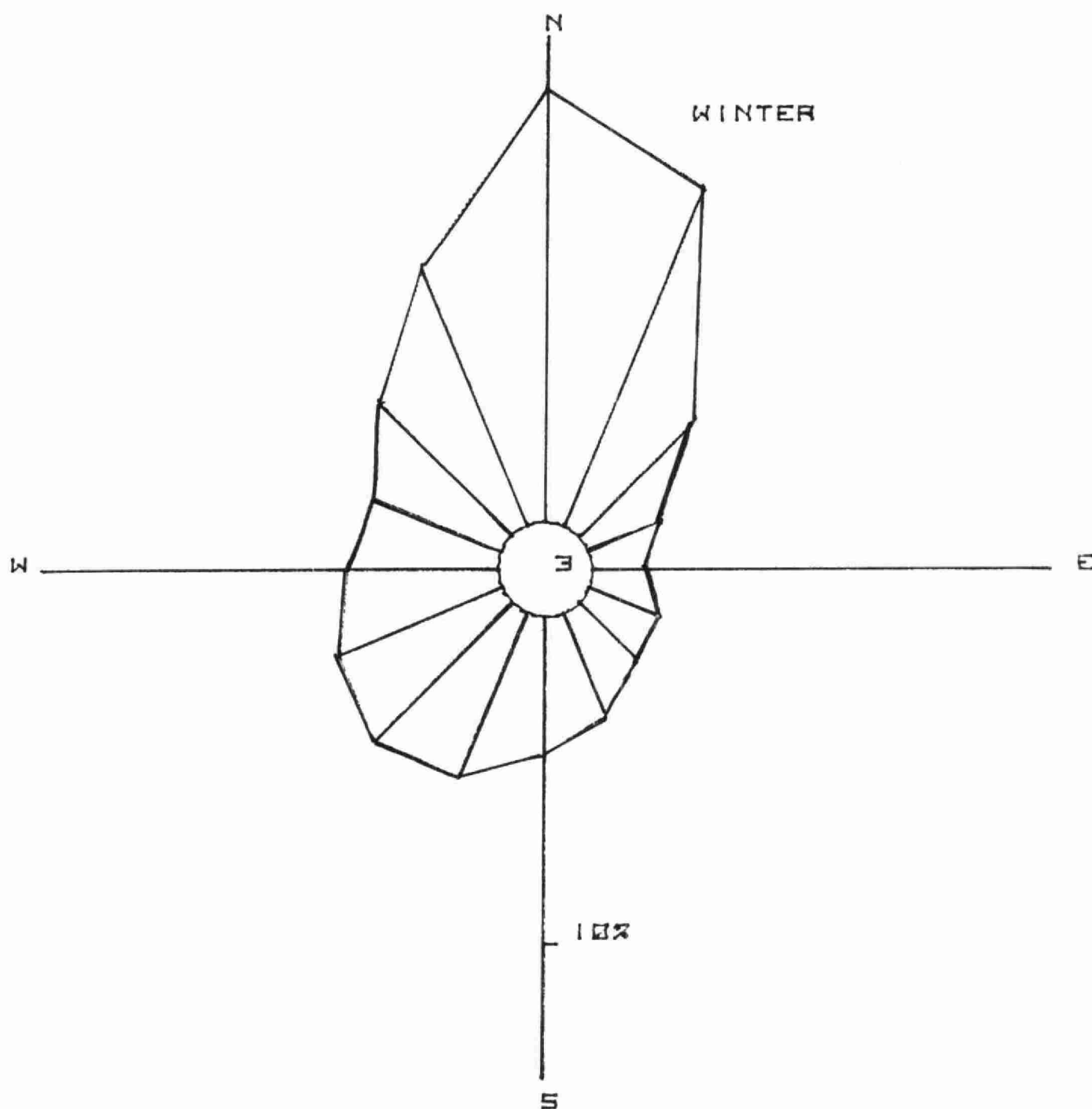
PERCENTAGE FREQUENCY

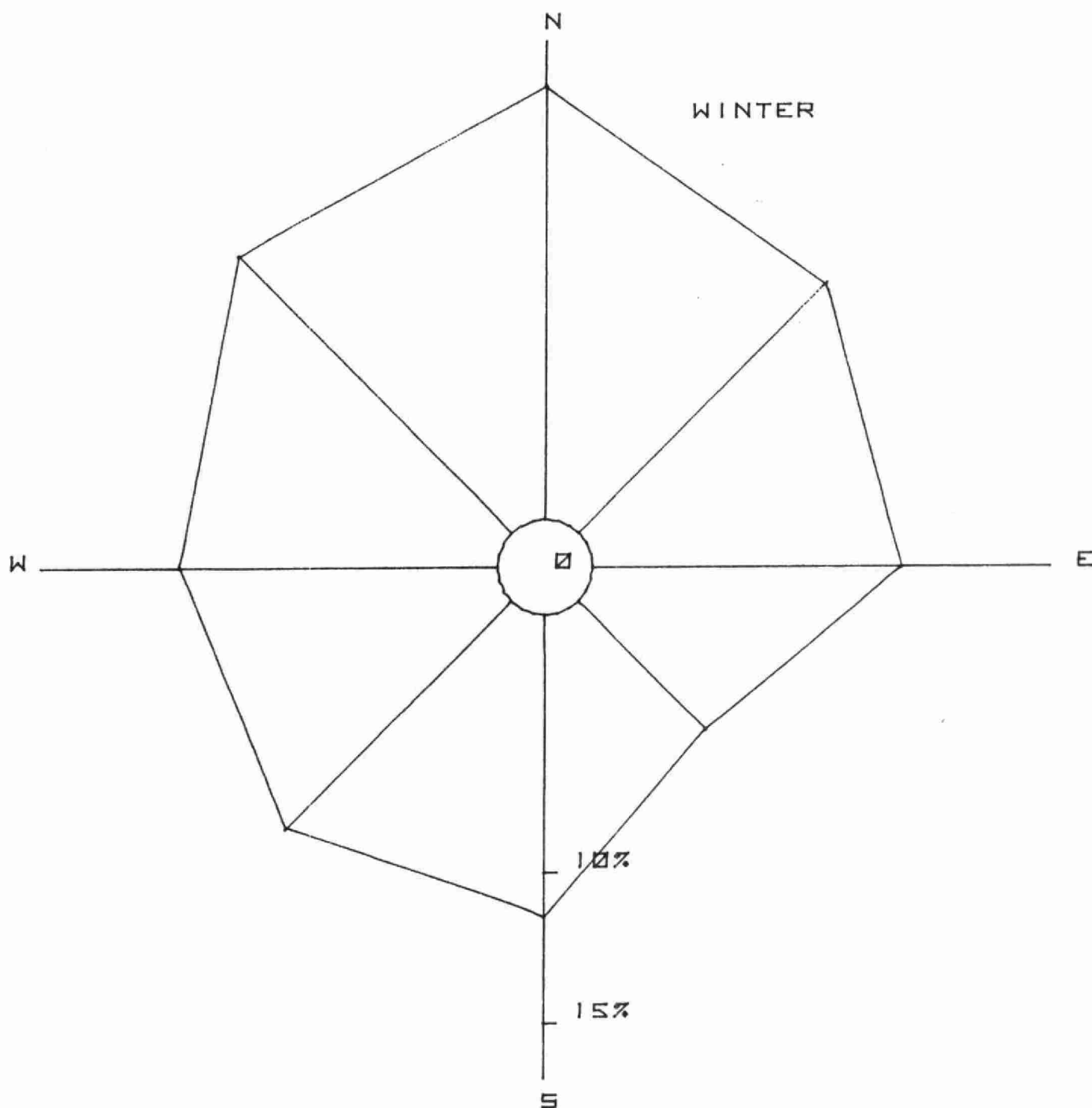
N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
13	9	8	3	4	3	4	3	7	5	7	5	6	5	7	7	3

SUDBURY (A) (AES) 1955-1968

(BIASES REMOVED)

80



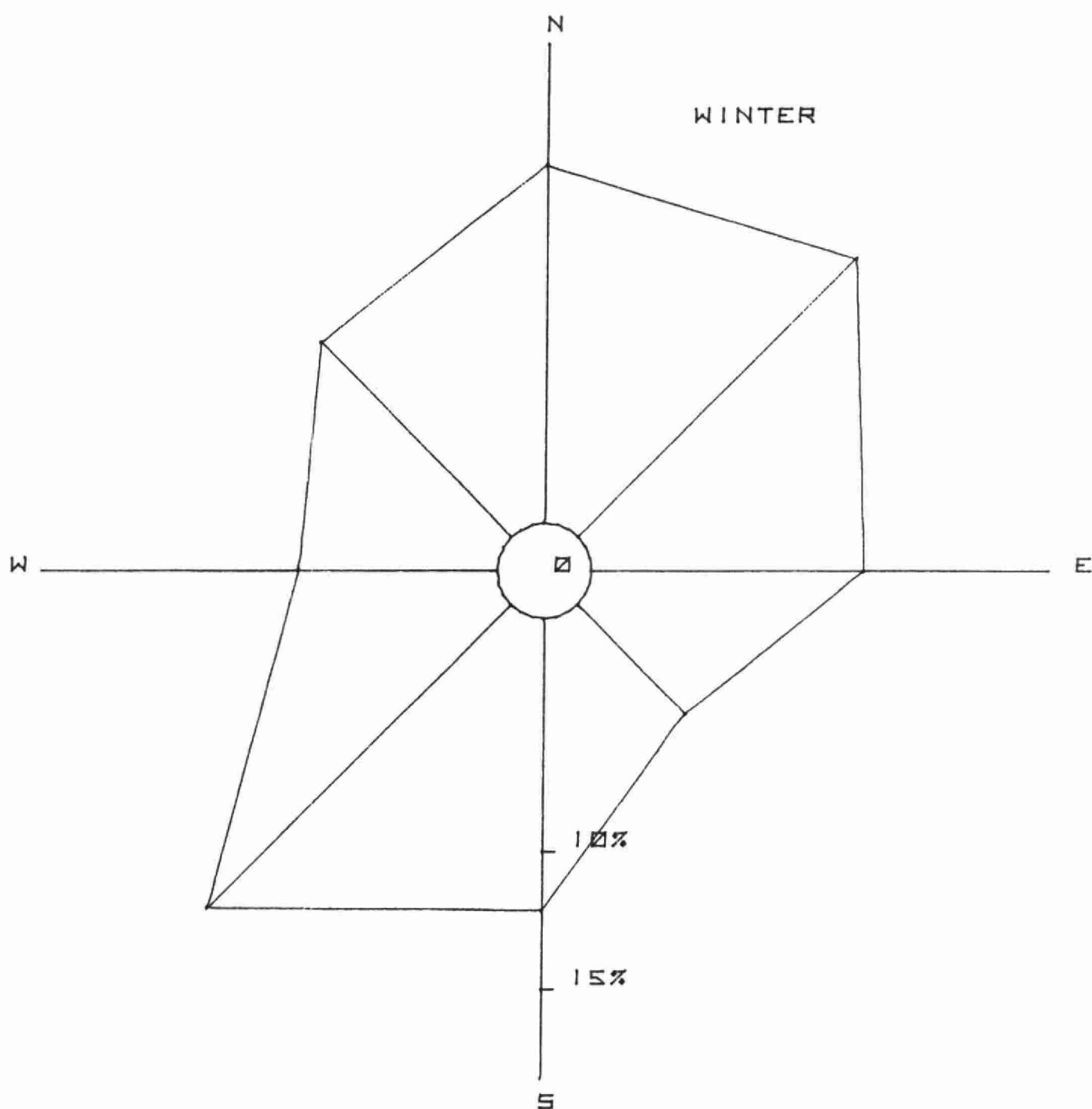


STATION INFORMATION

LOCATED ON WATER TANK ASH ST, SUDBURY, HEIGHT 10.1 M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
16	13	12	8	12	12	12	15	0

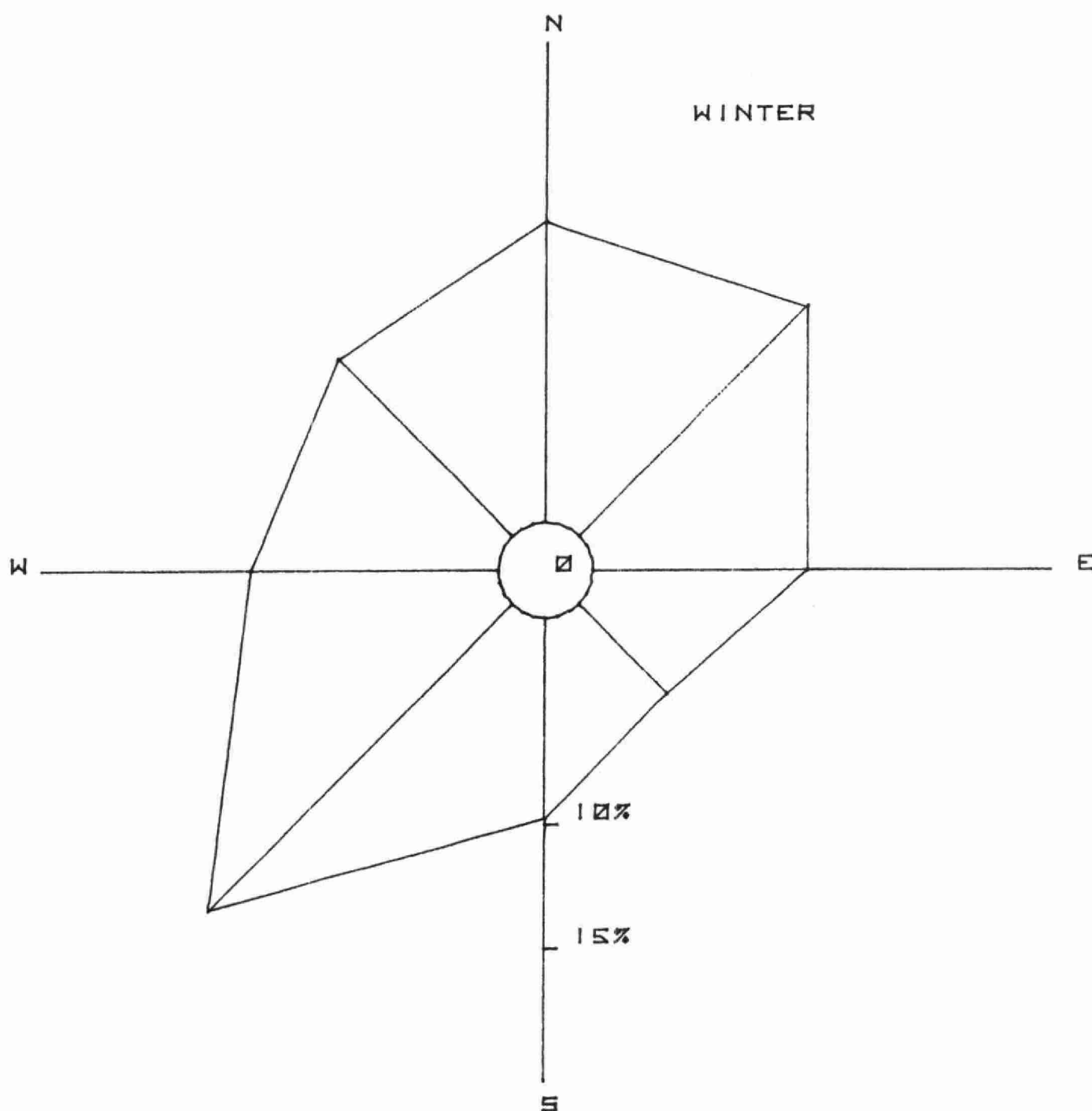


STATION INFORMATION

LOCATED ON CKNC TV TOWER, 699 FROOD RD, SUDBURY, HEIGHT 10.1 M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
15	16	12	7	12	17	9	12	0

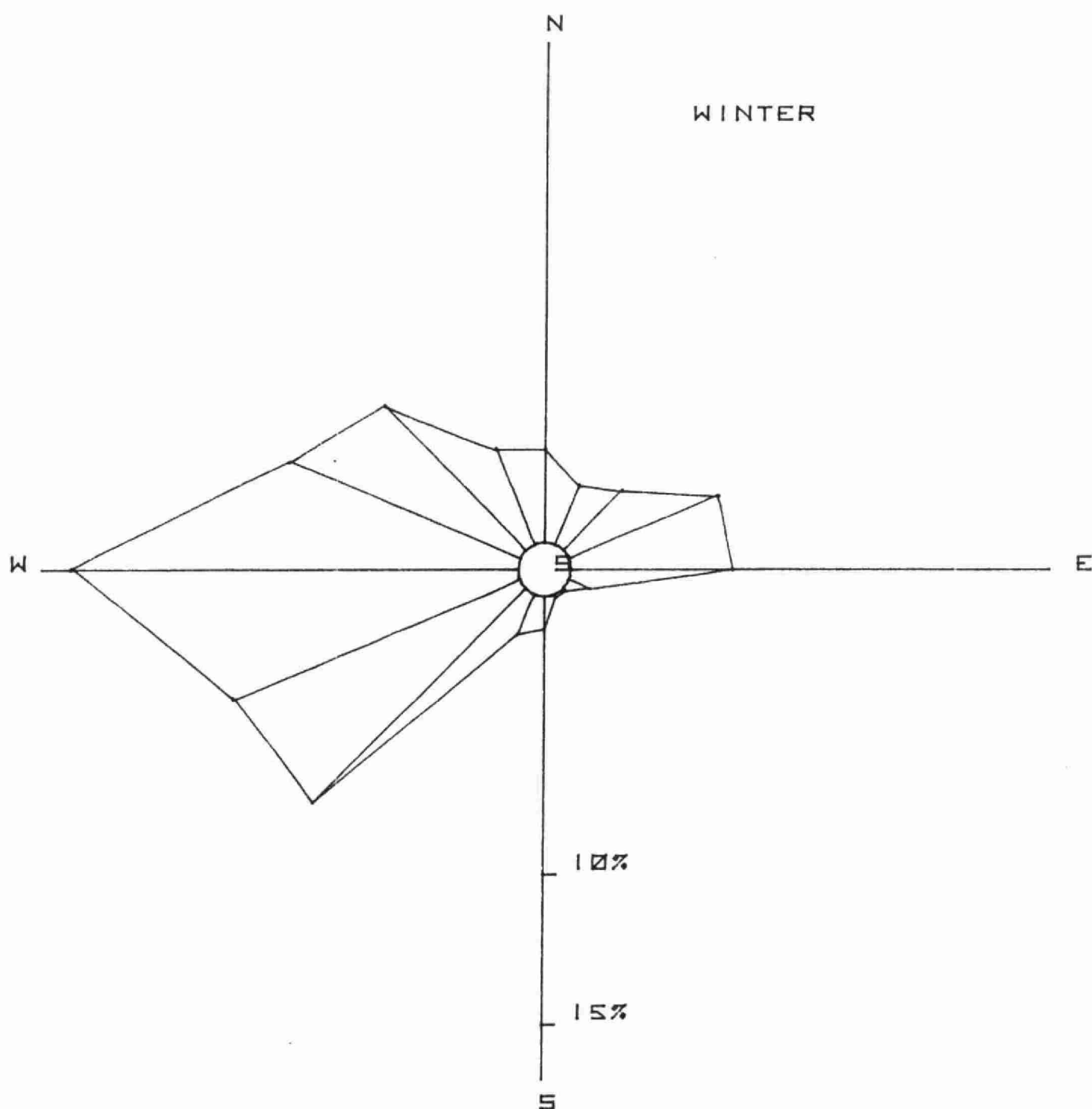


STATION INFORMATION

LOCATED ON CKNC TV TOWER, 699 FROOD RD, SUDBURY
HEIGHT 116.9 m

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
14	15	11	7	10	19	12	12	0

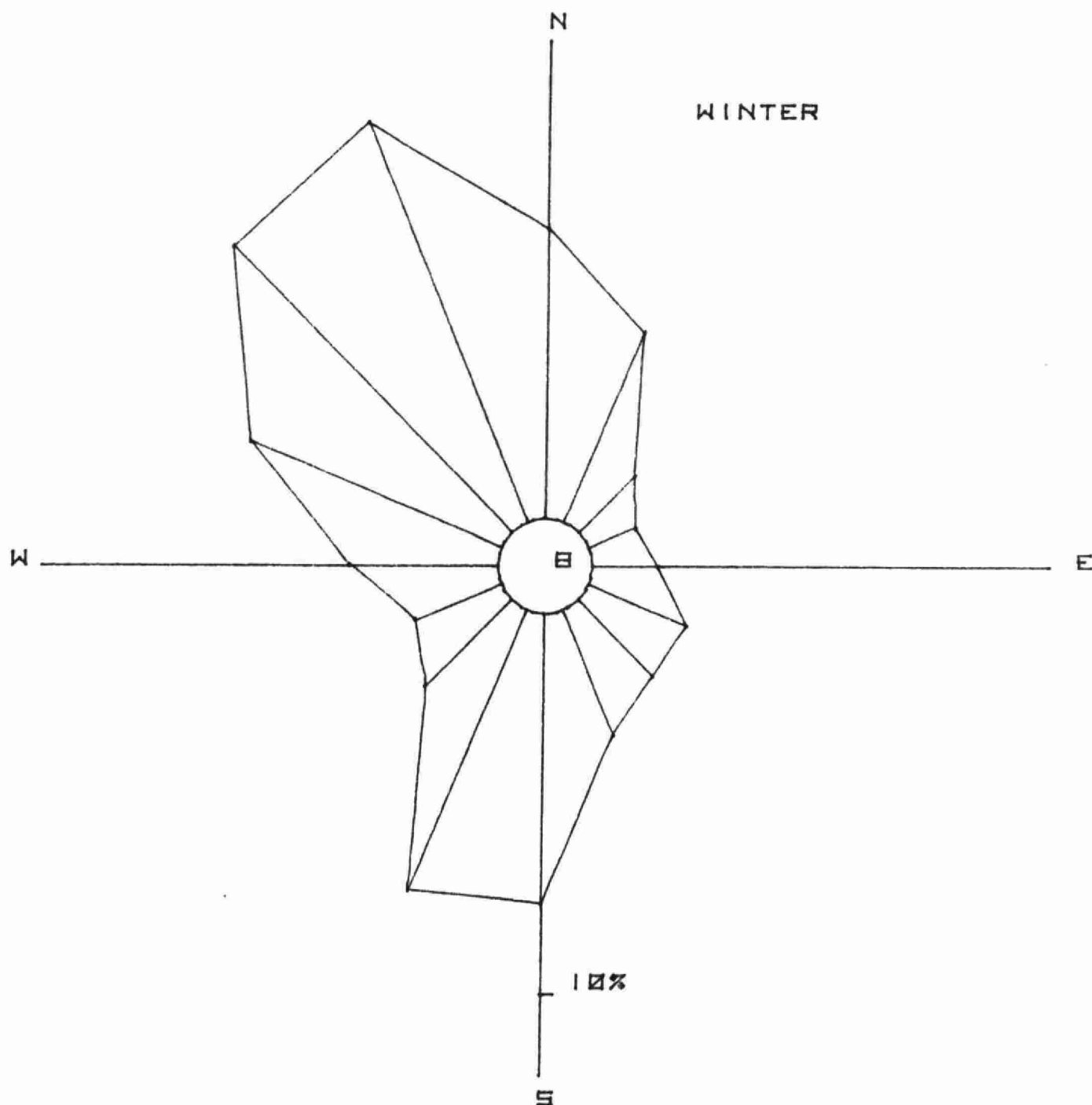


STATION INFORMATION

LOCATED 8 KM W OF LAKE SUPERIOR, HIGH GROUND ALL DIRECTIONS EXCEPT E, LOCAL AREA FLAT, MT MCKAY 3.2 KM TO S, HEIGHT 10.2 M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
4	3	4	6	6	2	1	1	2	3	11	11	16	9	8	4	9



STATION INFORMATION

LOCATED IN BUSH AND FOREST COUNTRY WITH SLIGHT ROLL AND ODD HILL.
NO OBSTRUCTIONS. HEIGHT 11.6 M

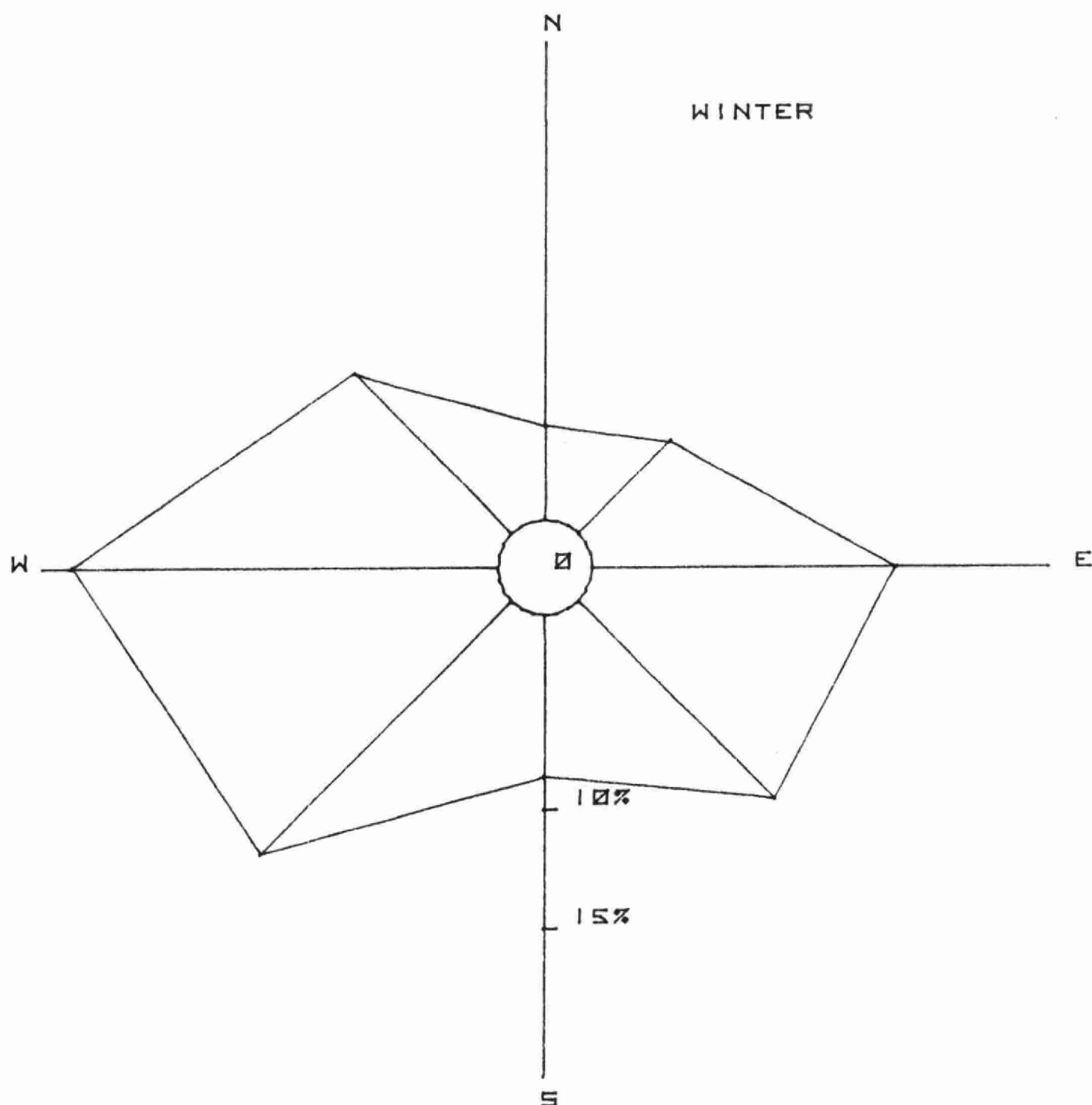
PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
8	6	3	2	3	4	4	4	8	3	4	3	5	8	11	11	8

TORONTO (ARB-31045) 1975-1976

(BIASES REMOVED)

86

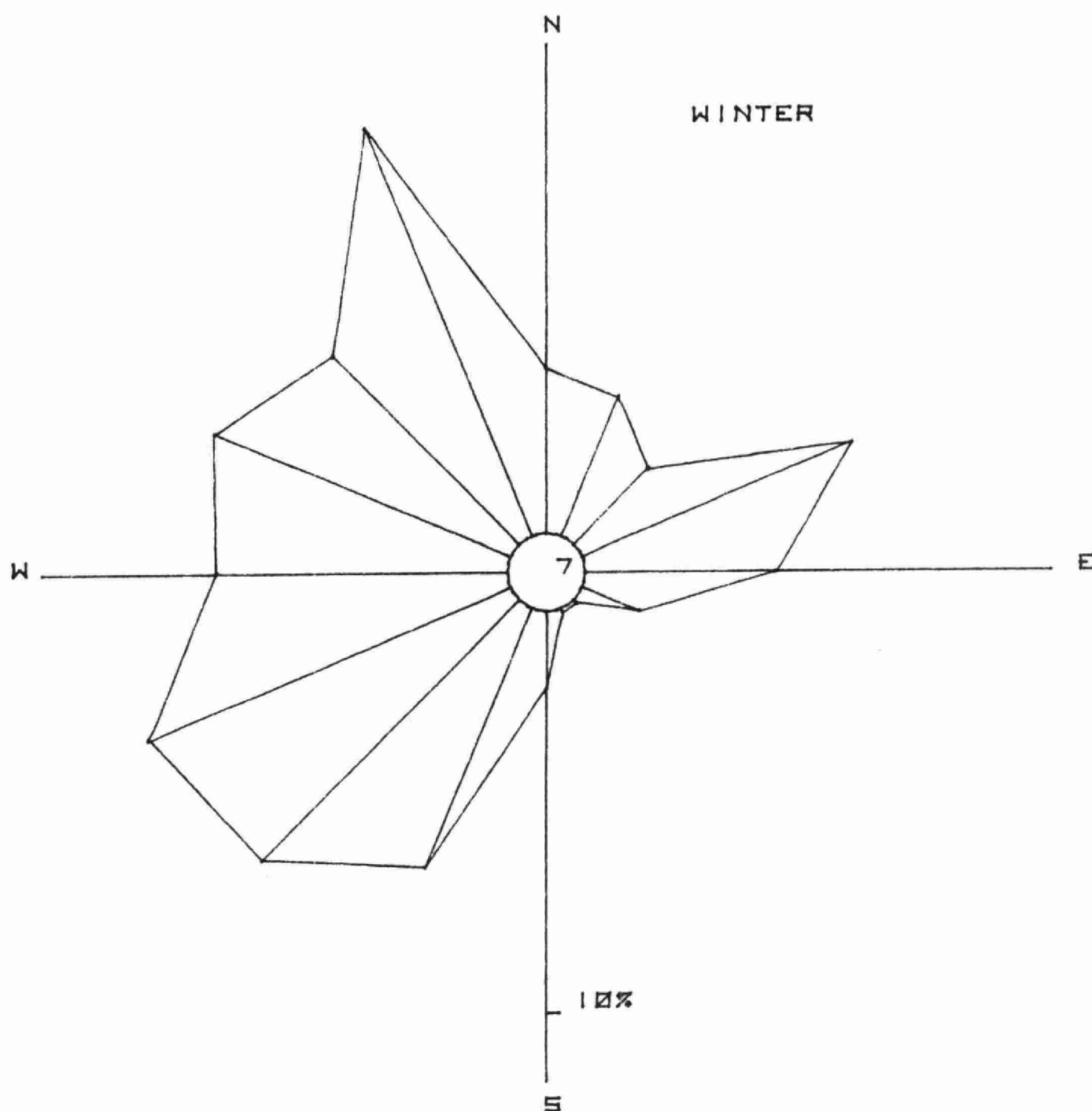


STATION INFORMATION

LOCATED AT BRUCE PS ON LARCHMOUNT AVE IN TORONTO
HEIGHT 21.5 M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
6	8	15	14	9	17	20	11	0



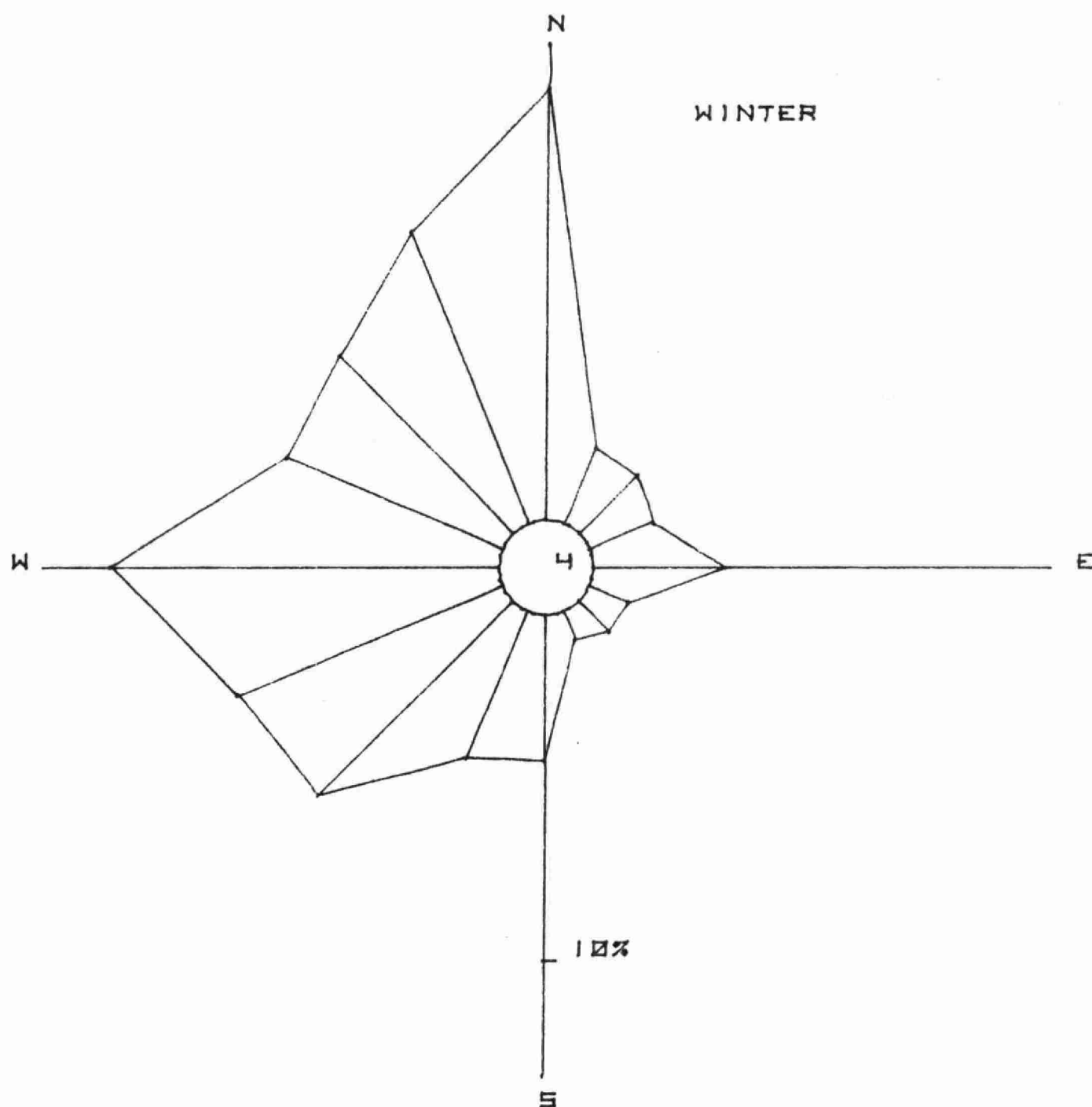
STATION INFORMATION

LOCATED ON KEELE ST. 2.4 KM N. OF MACDONALD-CARTIER FREEWAY. AREA GENERALLY FLAT. APPARENT EDDY EFFECT FROM N THROUGH E DUE TO BLDGS IN AREA. HEIGHT 10.2 M

PERCENTAGE FREQUENCY

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW CALM

5 5 3 8 5 2 1 1 3 9 9 10 8 8 7 11 7

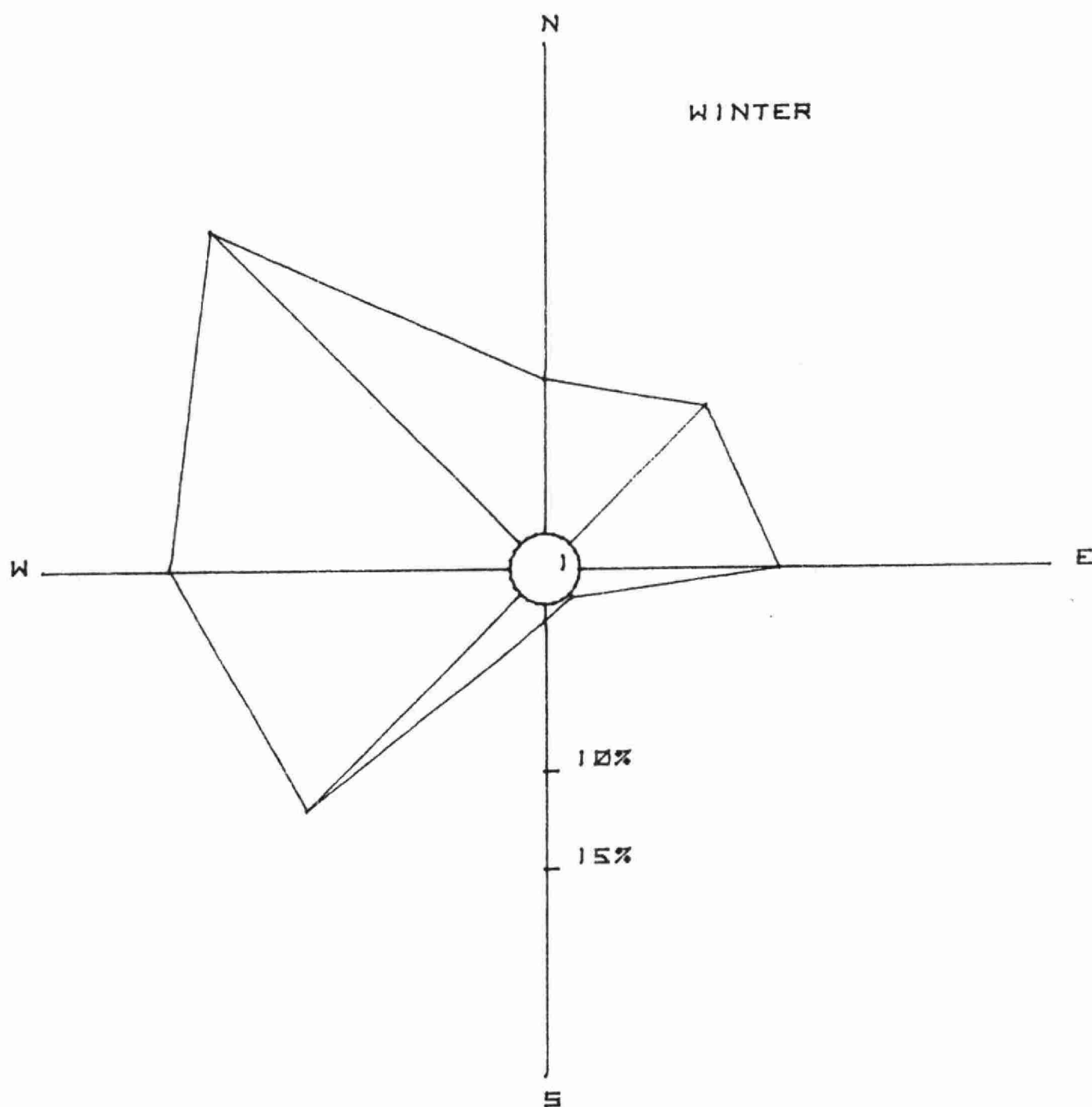


STATION INFORMATION

LOCATED ON SLIGHTLY ROLLING TO FLAT GROUND. ETOBICOKE CREEK IN VALLEY TO W. OCCASIONAL TREES IN OPEN COUNTRY. LAKE ONTARIO 11 KM SE. HEIGHT 10.2 M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
12	4	3	3	5	3	2	2	5	5	8	9	11	7	8	9	0

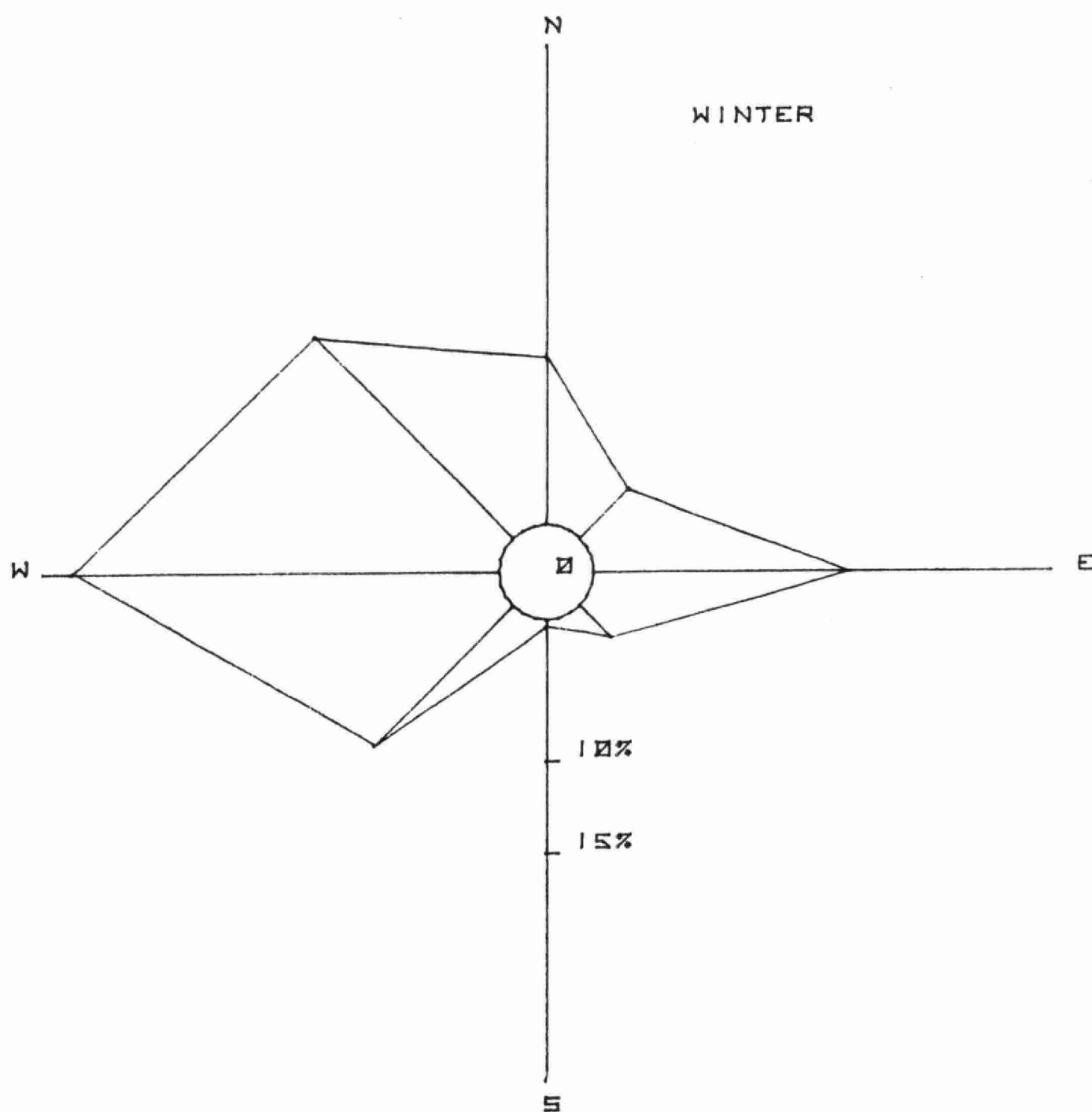


STATION INFORMATION

LOCATED ON CREST OF SMALL HILL IN OPEN COUNTRY, 15 KM NE OF CENTRE OF TORONTO. HEIGHT 14.8 KM

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	12	12	2	3	17	19	24	1

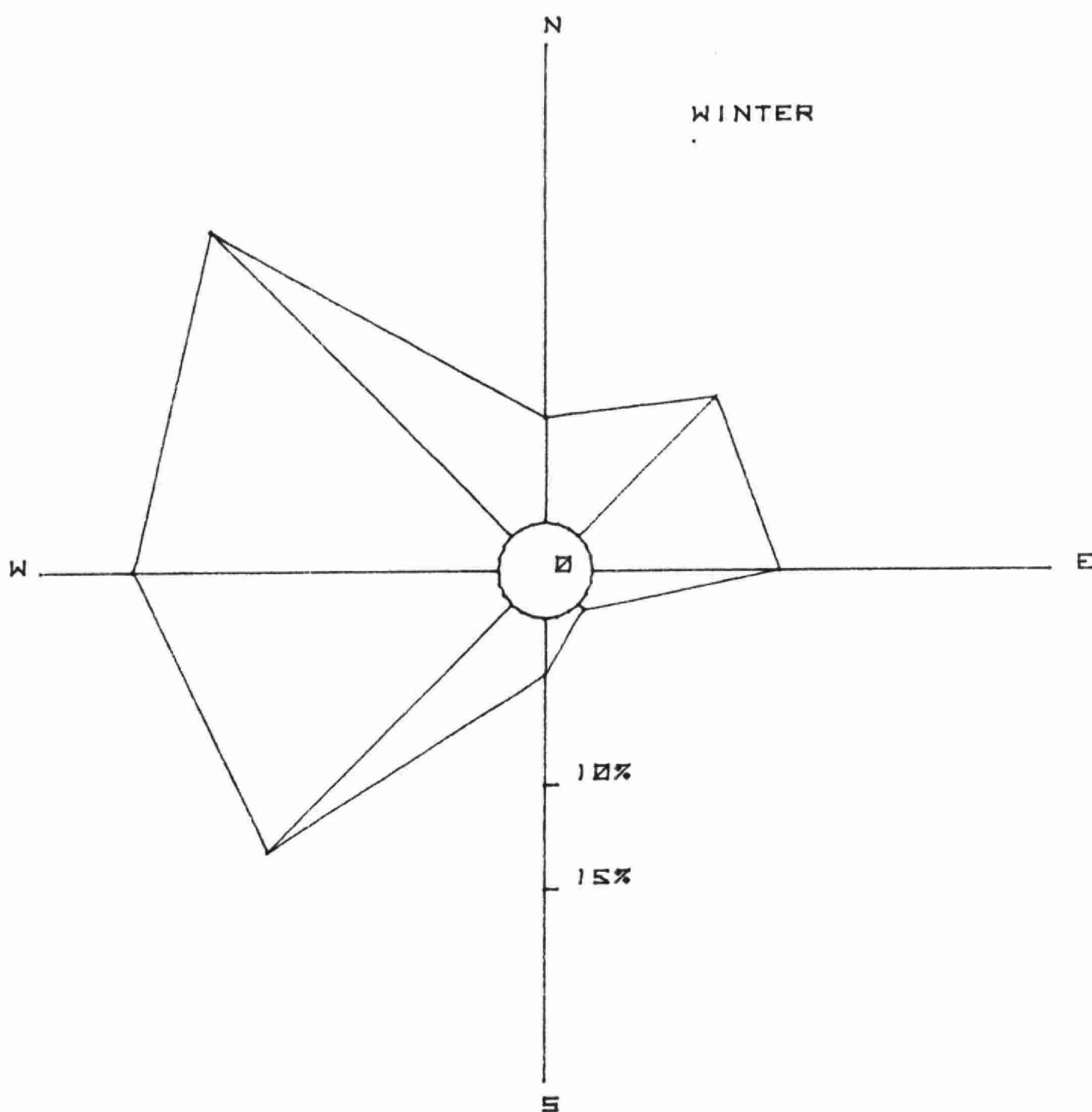


STATION INFORMATION

LOCATED AT TORONTO ISLAND AIRPORT, HEIGHT 10.1 M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
12	6	17	5	3	13	26	18	0

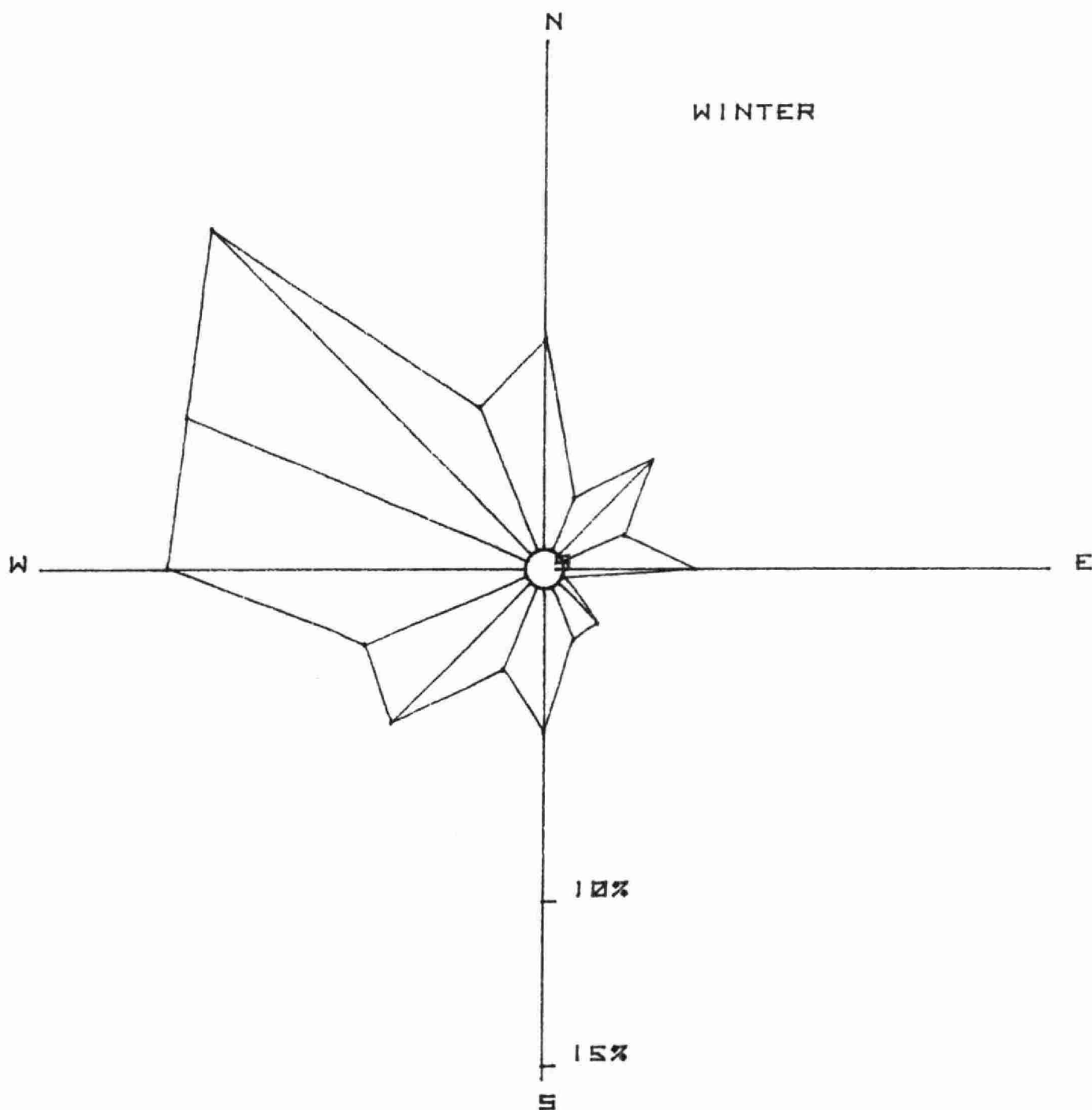


STATION INFORMATION

LOCATED NW END OF ISLAND. ANEMOMETER IS ON ADMIN BLDG. WELL EXPOSED TO N WITH SOME SHELTERING FROM HANGARS NW AND BLDGS TO NE.
HEIGHT 18.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
7	12	11	3	5	19	20	23	0



STATION INFORMATION

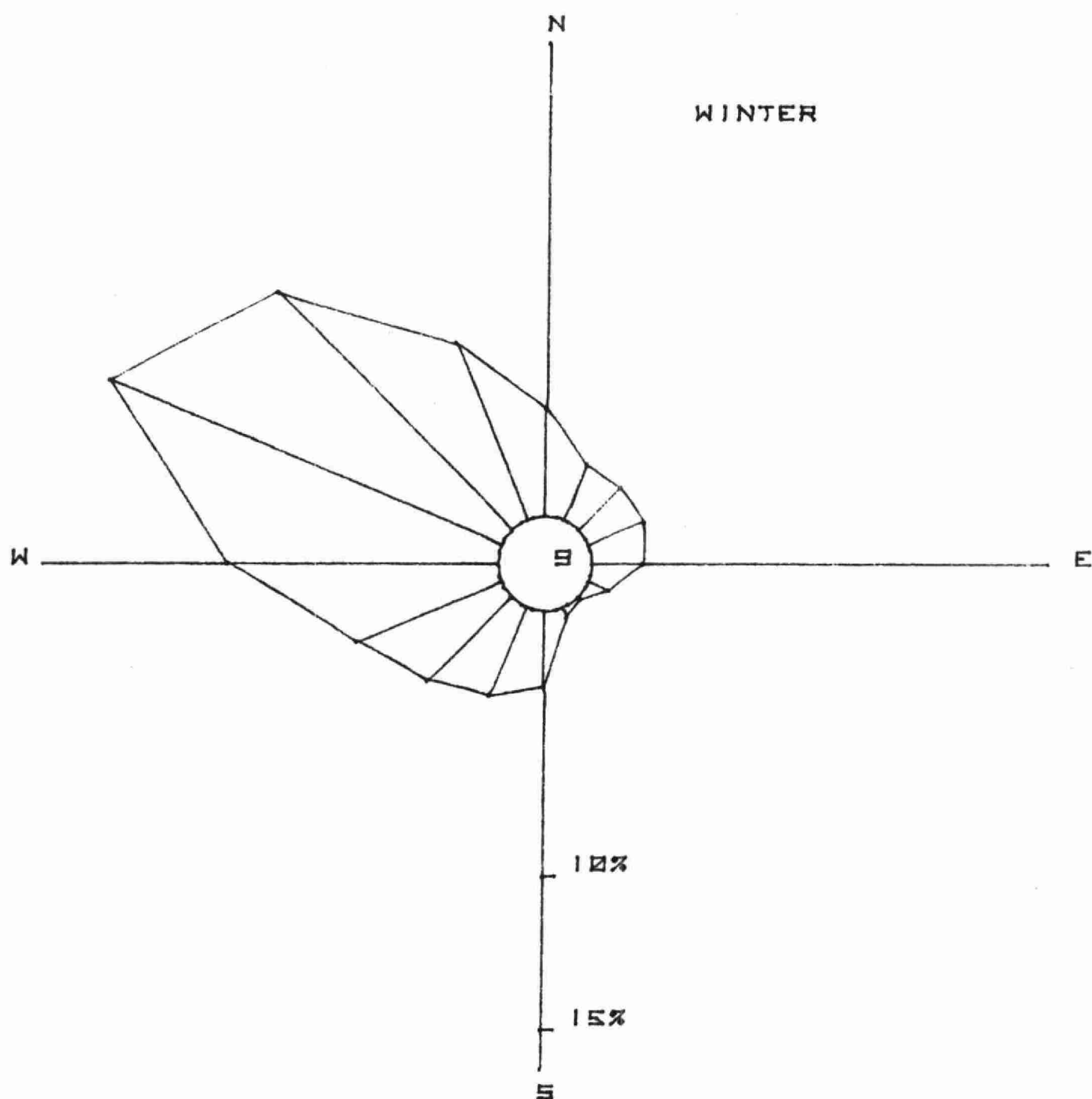
LOCATED ON AN ISLAND NEAR N SHORE OF BIG TROUT LAKE. COUNTRY IS FLAT WITH HEAVY WOODS AND MUSKEG. NUMEROUS LAKES. SITE WELL EXPOSED. HEIGHT 10.2M

PERCENTAGE FREQUENCY

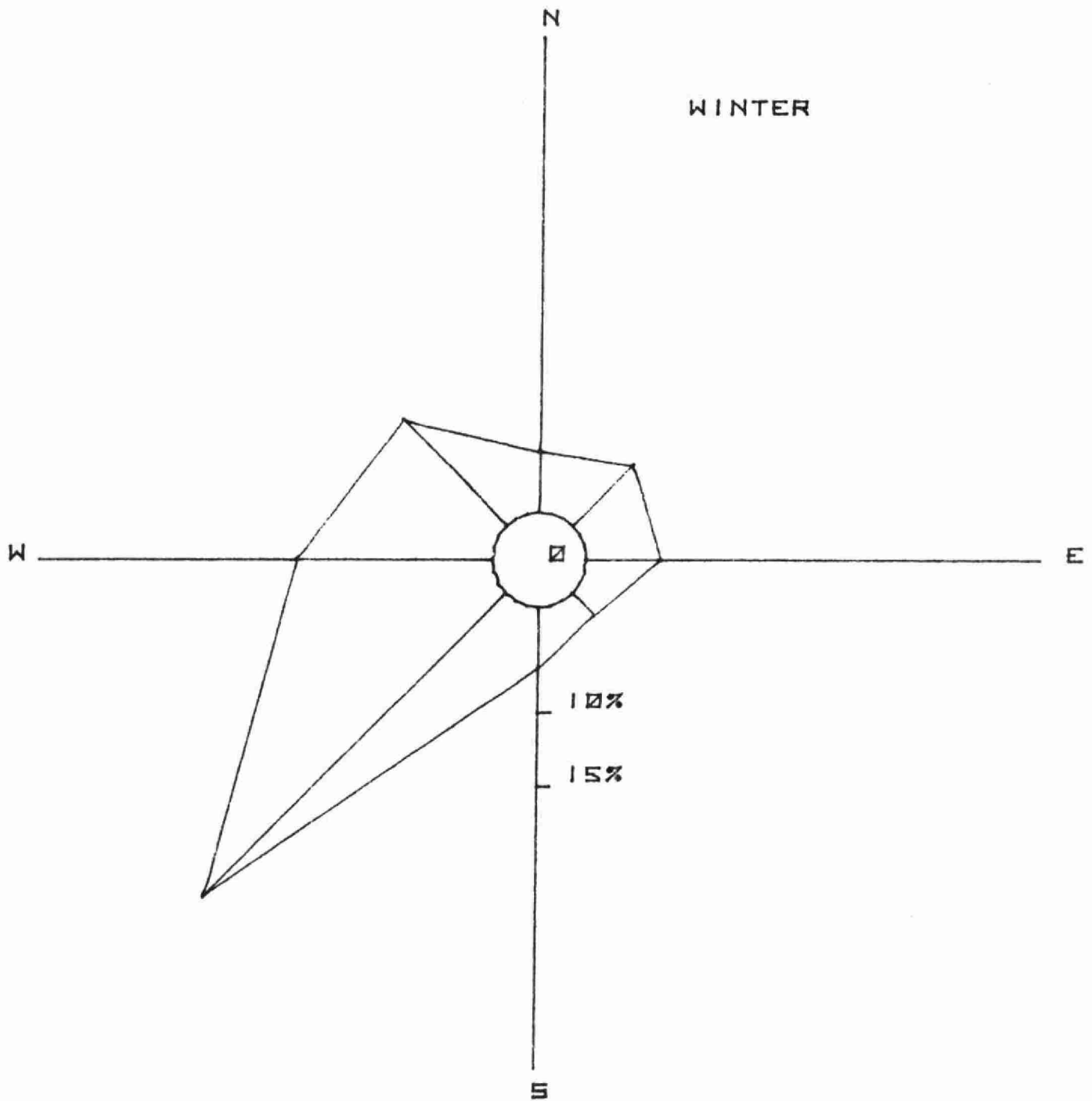
N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
7	2	5	3	5	1	2	2	5	3	7	6	12	12	14	5	9

TROUT LAKE (AES) 1968-1972
(BIASES REMOVED)

93



VINELAND (AES) 1955-1972

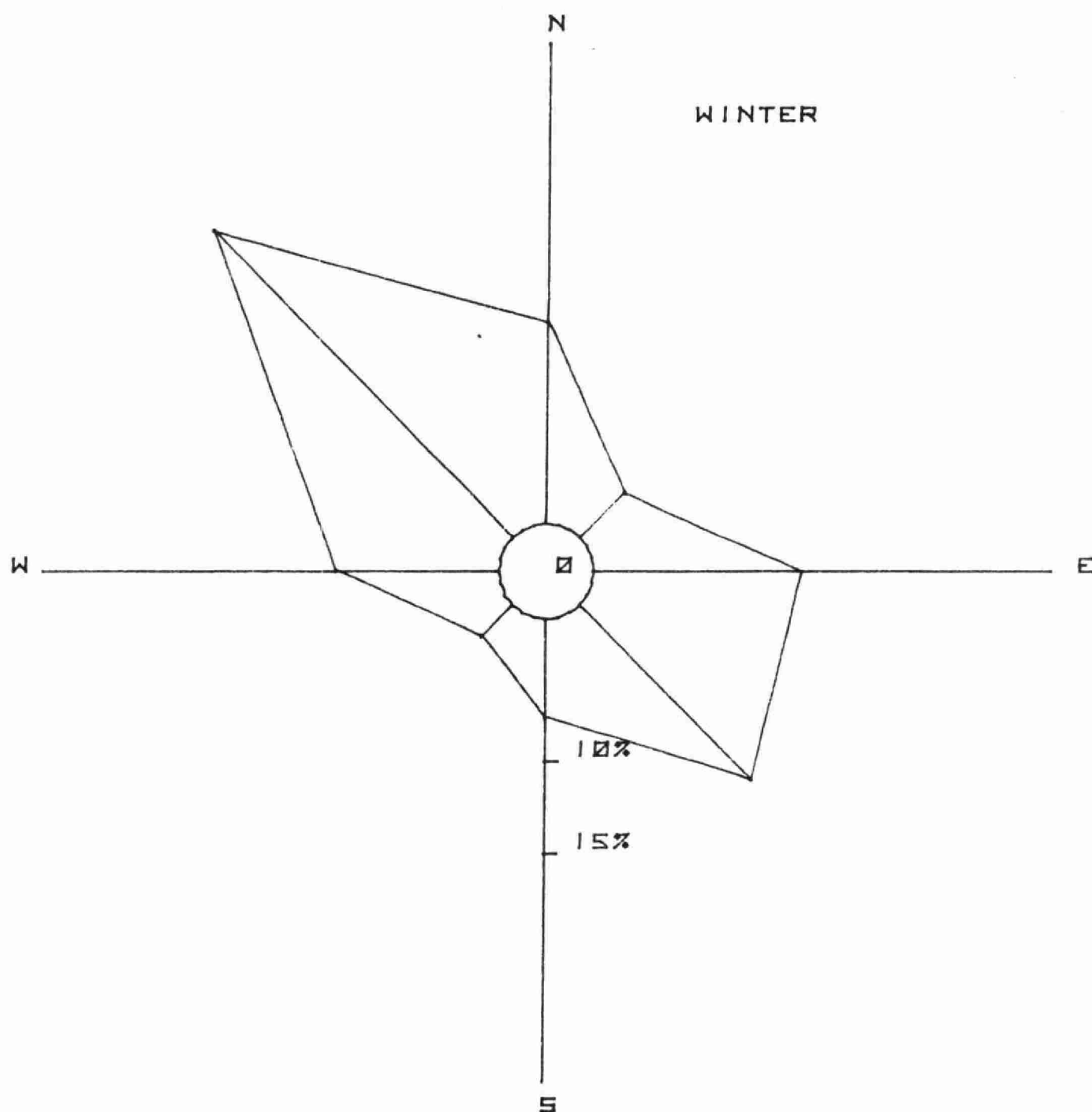


STATION INFORMATION

LOCATED AT EXPERIMENTAL FARM N OF TOWN. AREA FLAT WITH NIAGARA ESCARPMENT RUNNING WNW-ESE 1.6KM S. ESCARPMENT HEIGHT 61.5-92.3M. HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	9	9	5	7	32	17	13	0

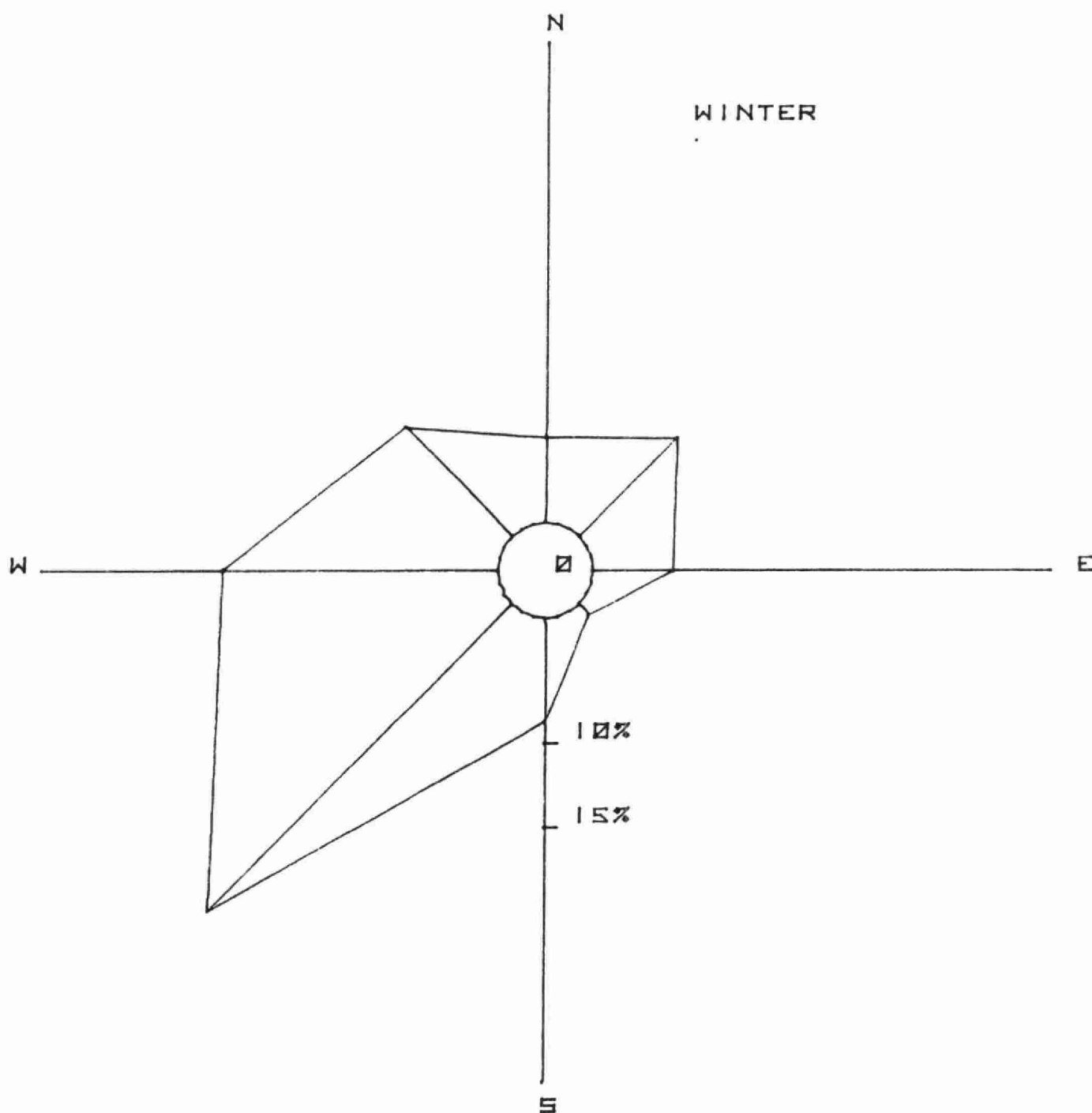


STATION INFORMATION

LOCATED IN WAWA AT ALGOMA ORE LUCIE PIT.
HEIGHT 10.1M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
14	6	14	16	8	5	12	26	0



STATION INFORMATION

LOCATED ON ROOF OF PUBLIC SCHOOL AT 309 BEATRICE ST.
HEIGHT 10.1M

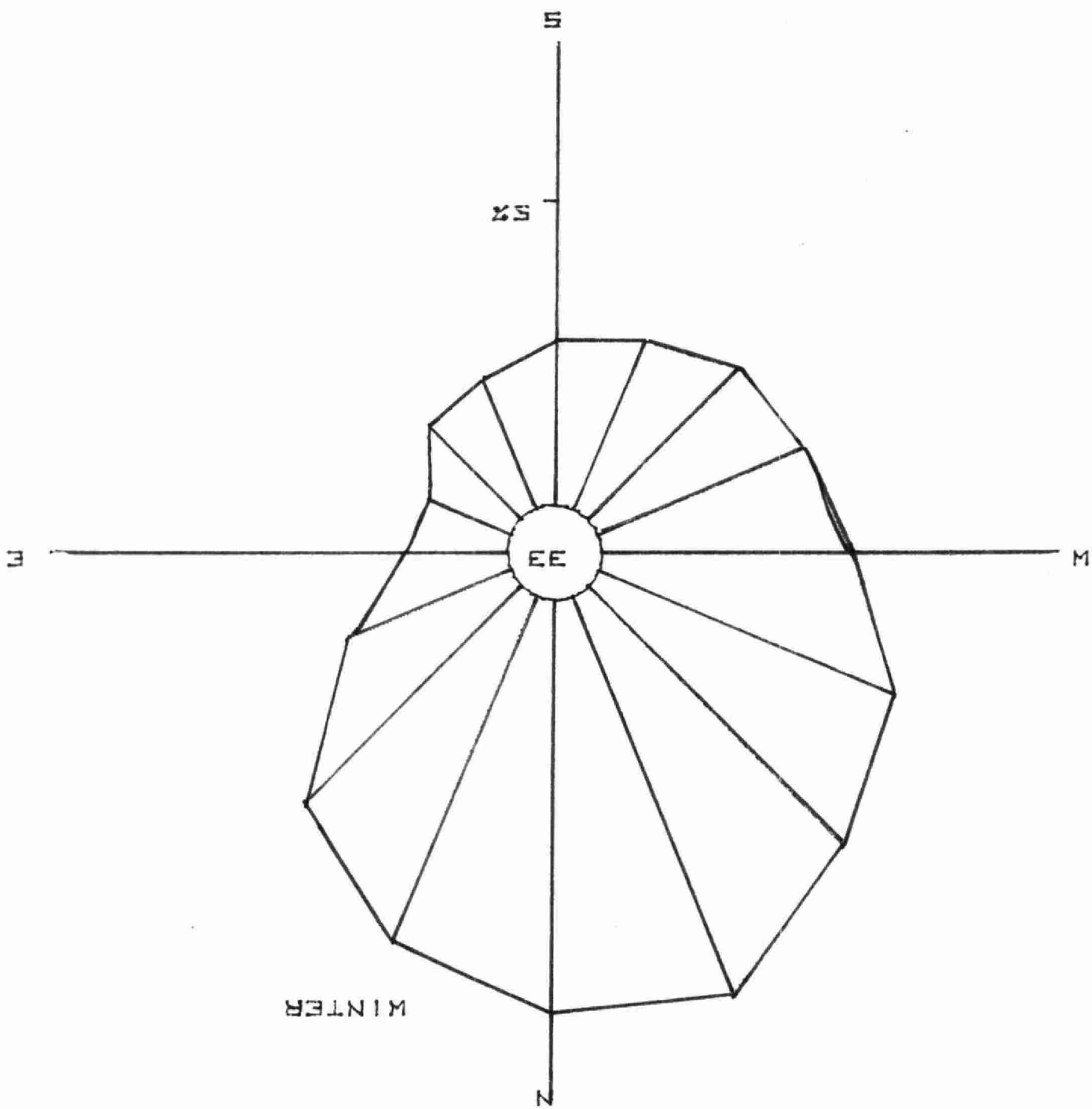
PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	11	8	4	9	29	19	12	0

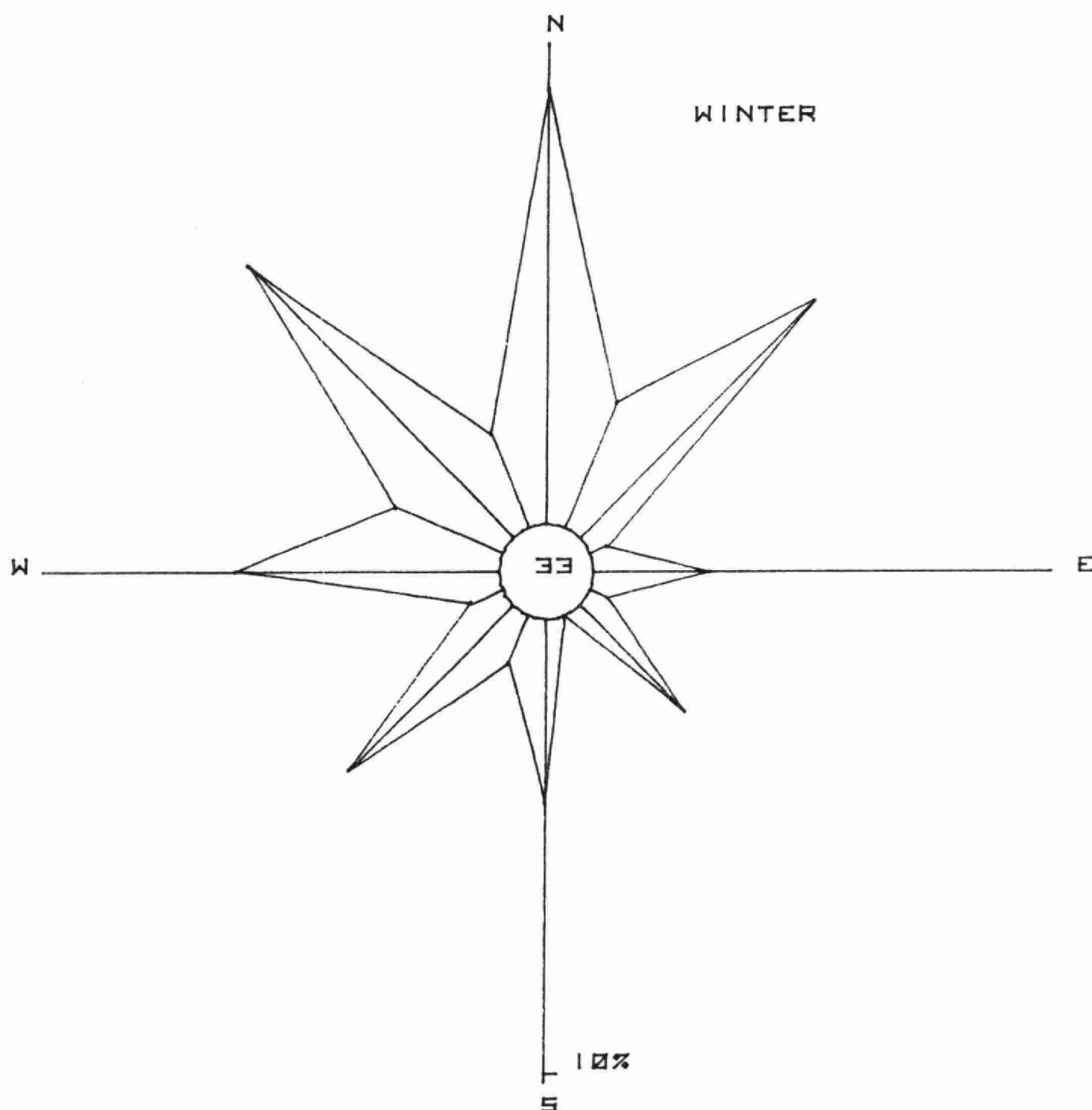
WHITE RIVER (RES) 1955-1972

(RISES REMOVED)

WINTER



WHITE RIVER (AES) 1955-1972

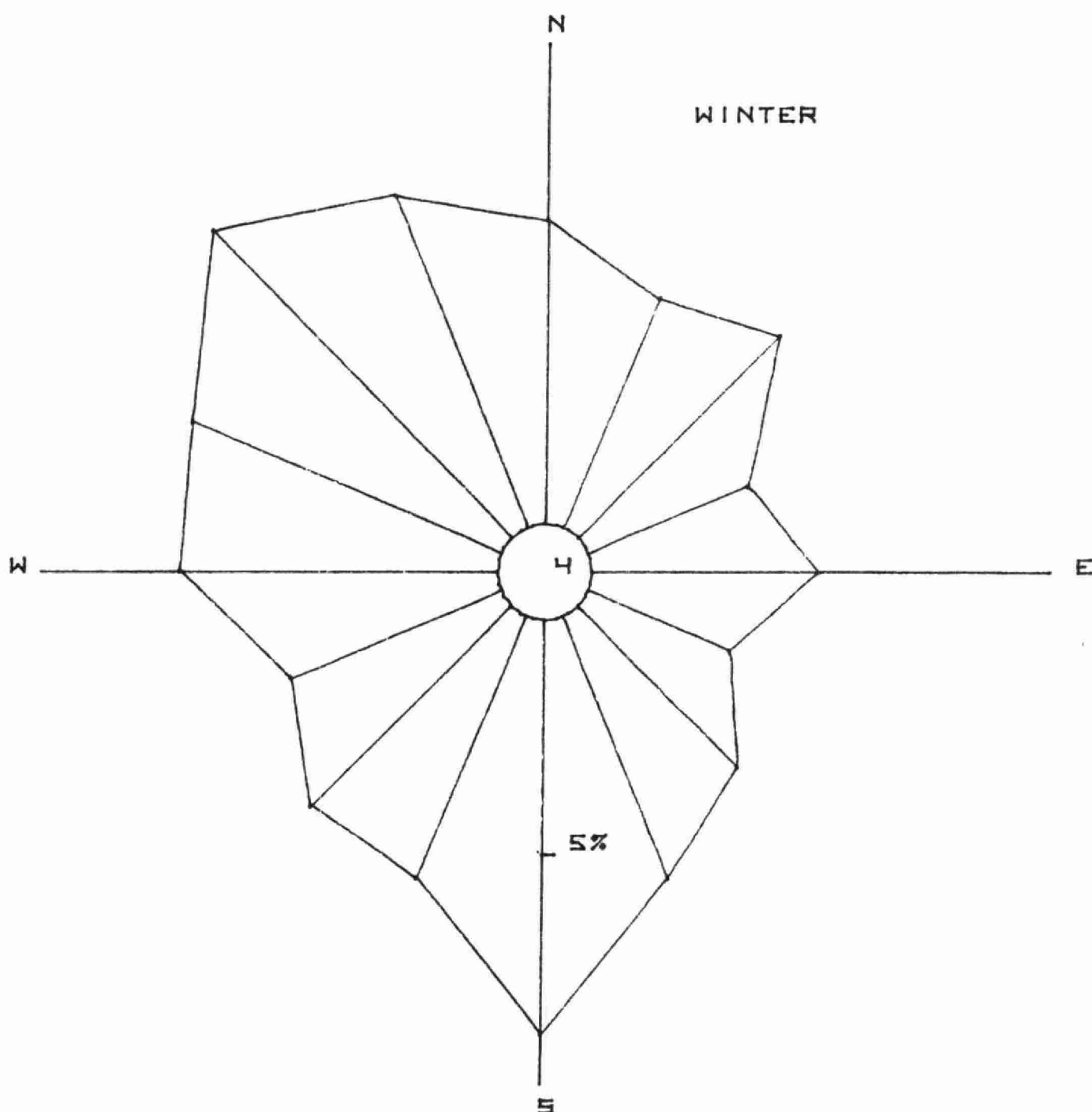


STATION INFORMATION

LOCATED IN SAUCER-LIKE DEPRESSION AT AIR SERVICE BLDG. HILLY COUNTRY
IN ALL DIRECTIONS WITH TREES AND BUSH REMOVED.
HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
10	4	8	1	3	1	4	1	5	2	6	2	6	3	8	3	33

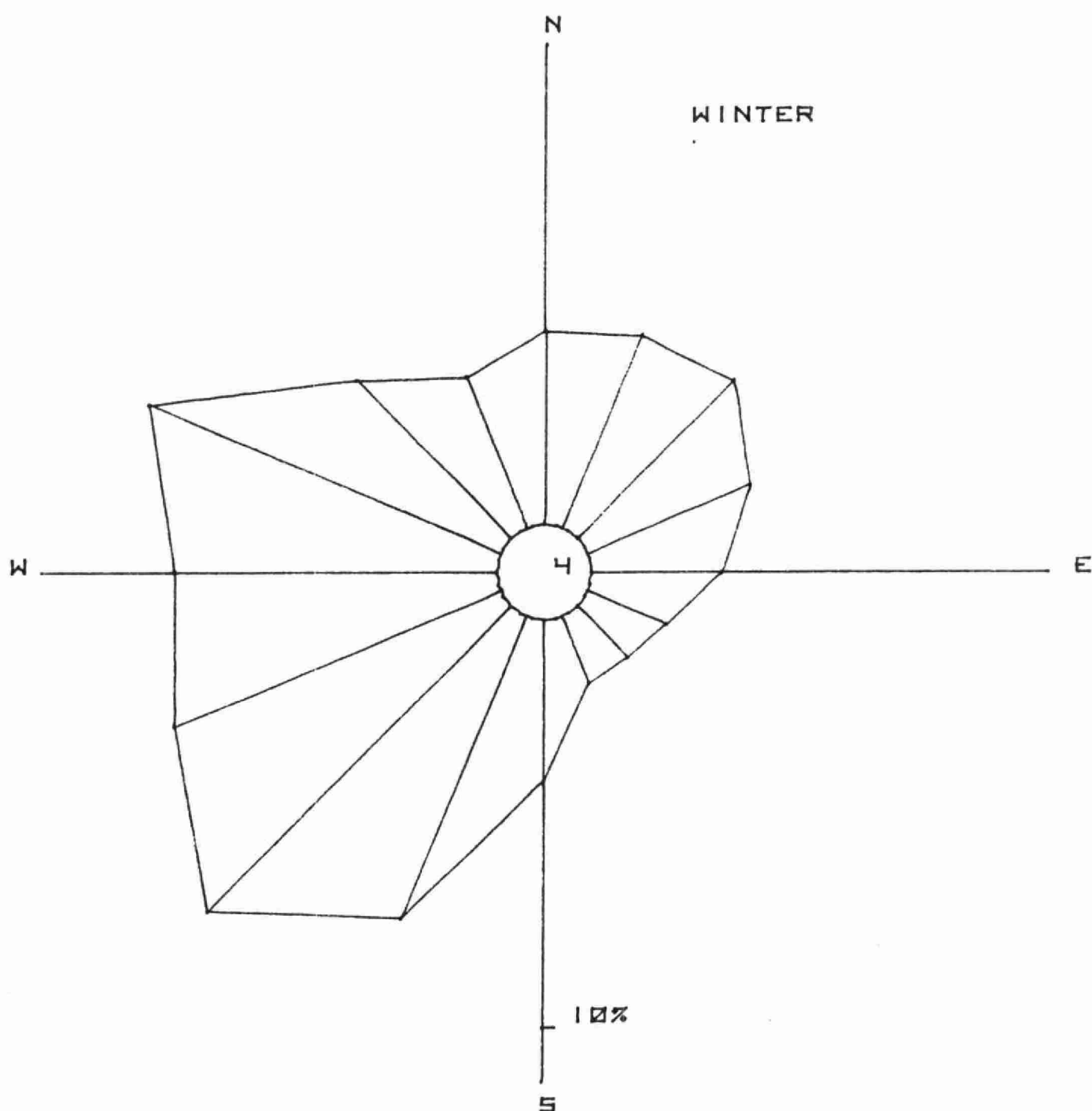


STATION INFORMATION

LOCATED ON SLIGHT RAISED GROUND AT AIRPORT TOWER 153.8M E OF TERMINAL
BLDG 215.4M S OF WOODS.
HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
6	5	6	4	5	4	5	6	8	6	6	5	7	7	9	7	4



STATION INFORMATION

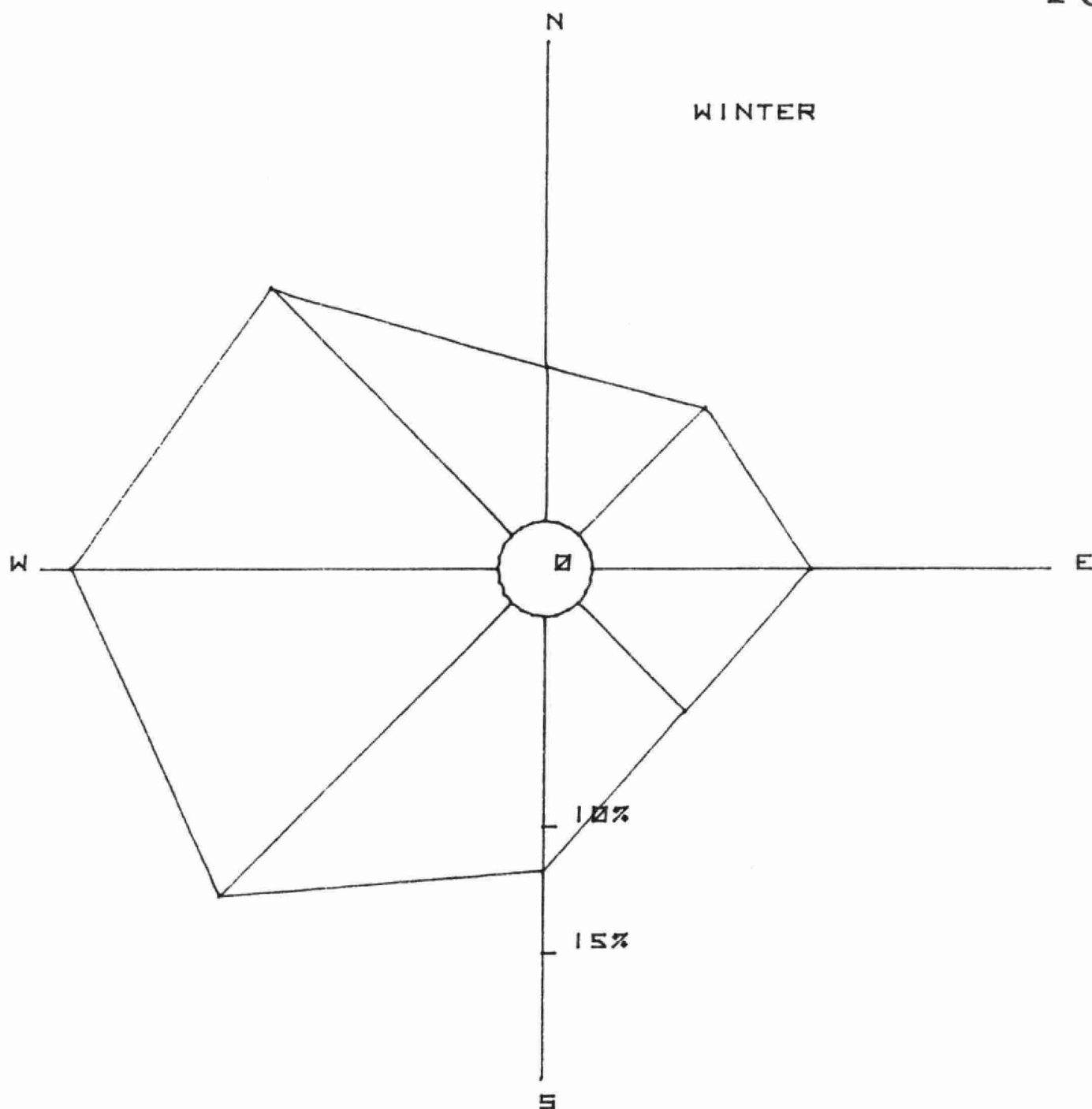
LOCATED NW CITY. NO OBSTRUCTIONS IN FLAT TREELESS COUNTRY.
HEIGHT 10.2M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
5	6	6	5	4	3	3	3	5	8	11	9	8	10	6	4	4

WINDSOR (ARB-12032) LEVEL 1 1971-1976

100

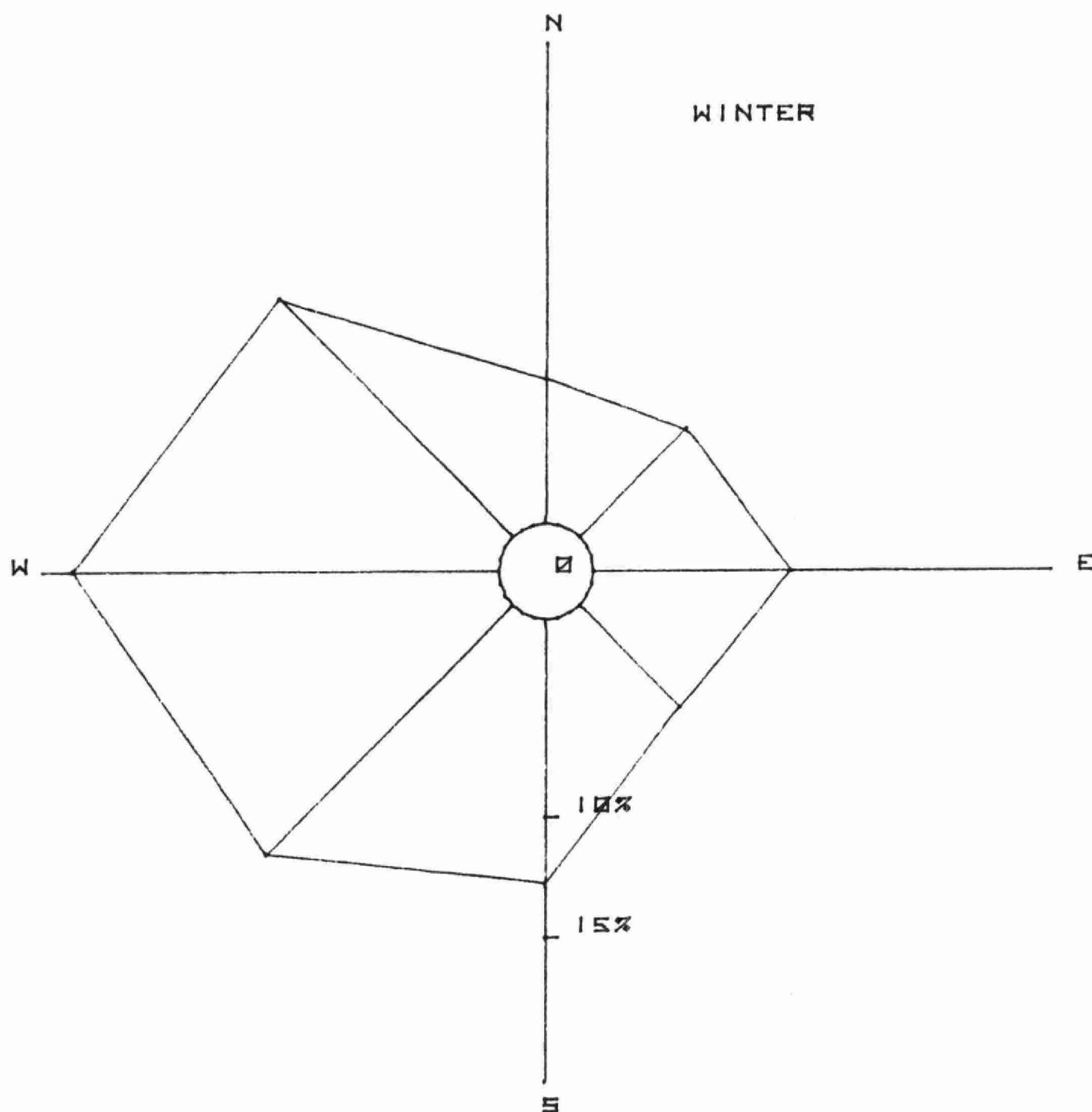


STATION INFORMATION

LOCATED MORTON DOCK AT BEDFORD/OJIBWAY,
HEIGHT 6.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
8	9	11	8	12	18	19	15	0

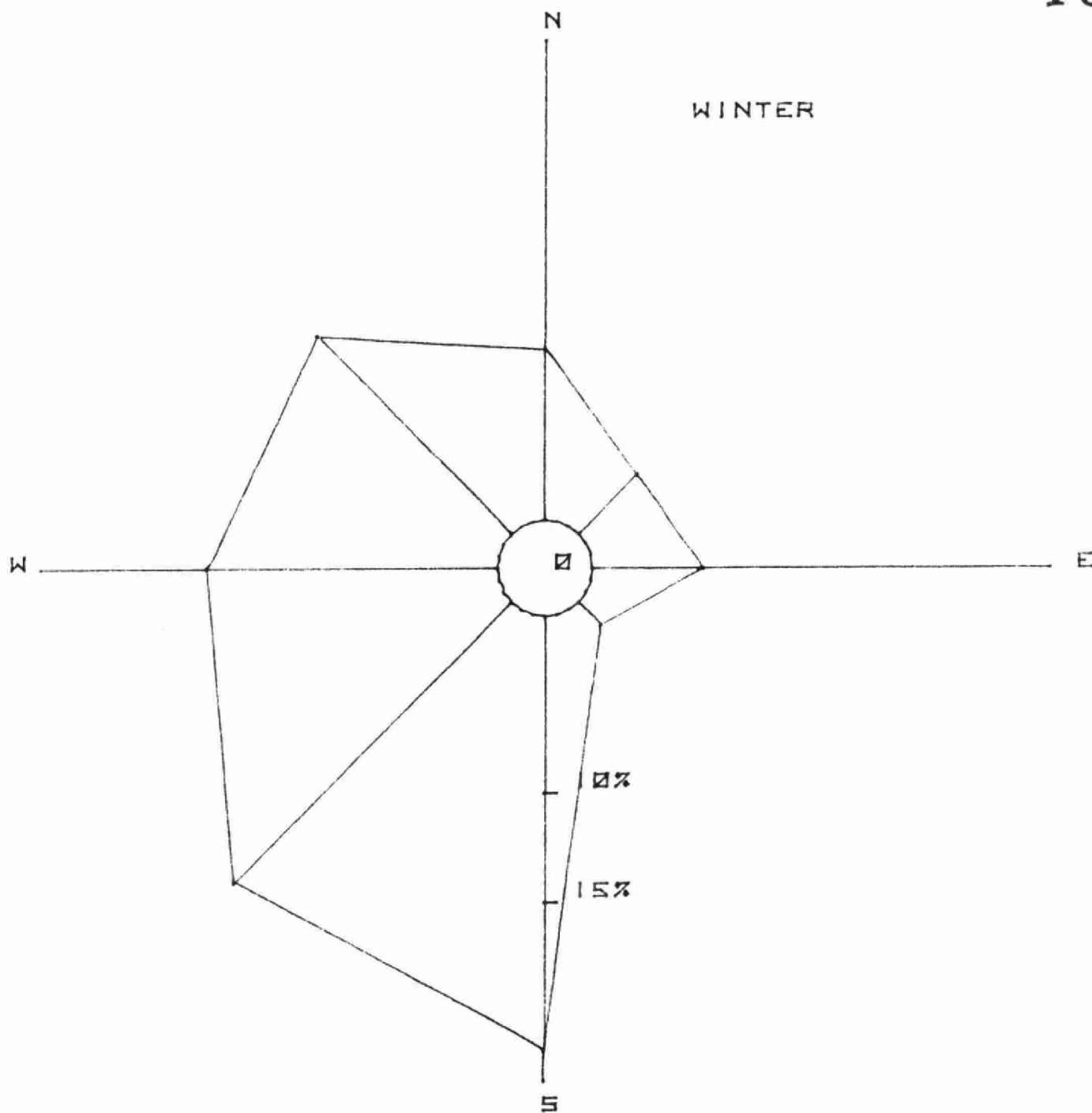


STATION INFORMATION

LOCATED MORTON DOCK AT BEDFORD/OJIBWAY,
HEIGHT 39.3M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
3	8	10	8	13	17	20	16	0

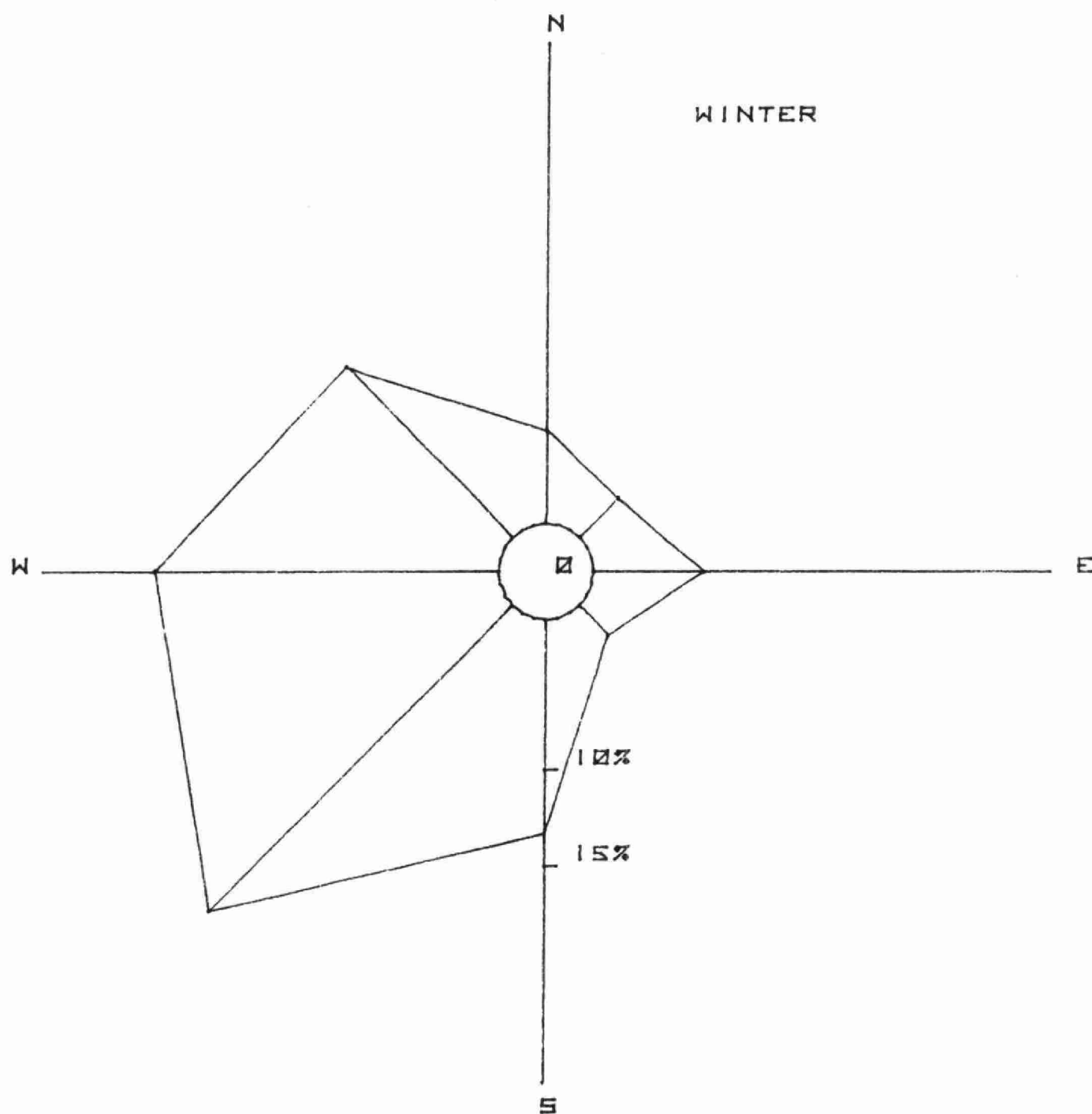


STATION INFORMATION

LOCATED RIVERSIDE DRIVE ON CP TOWER,
HEIGHT 19.4M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
10	6	7	4	22	20	16	15	0

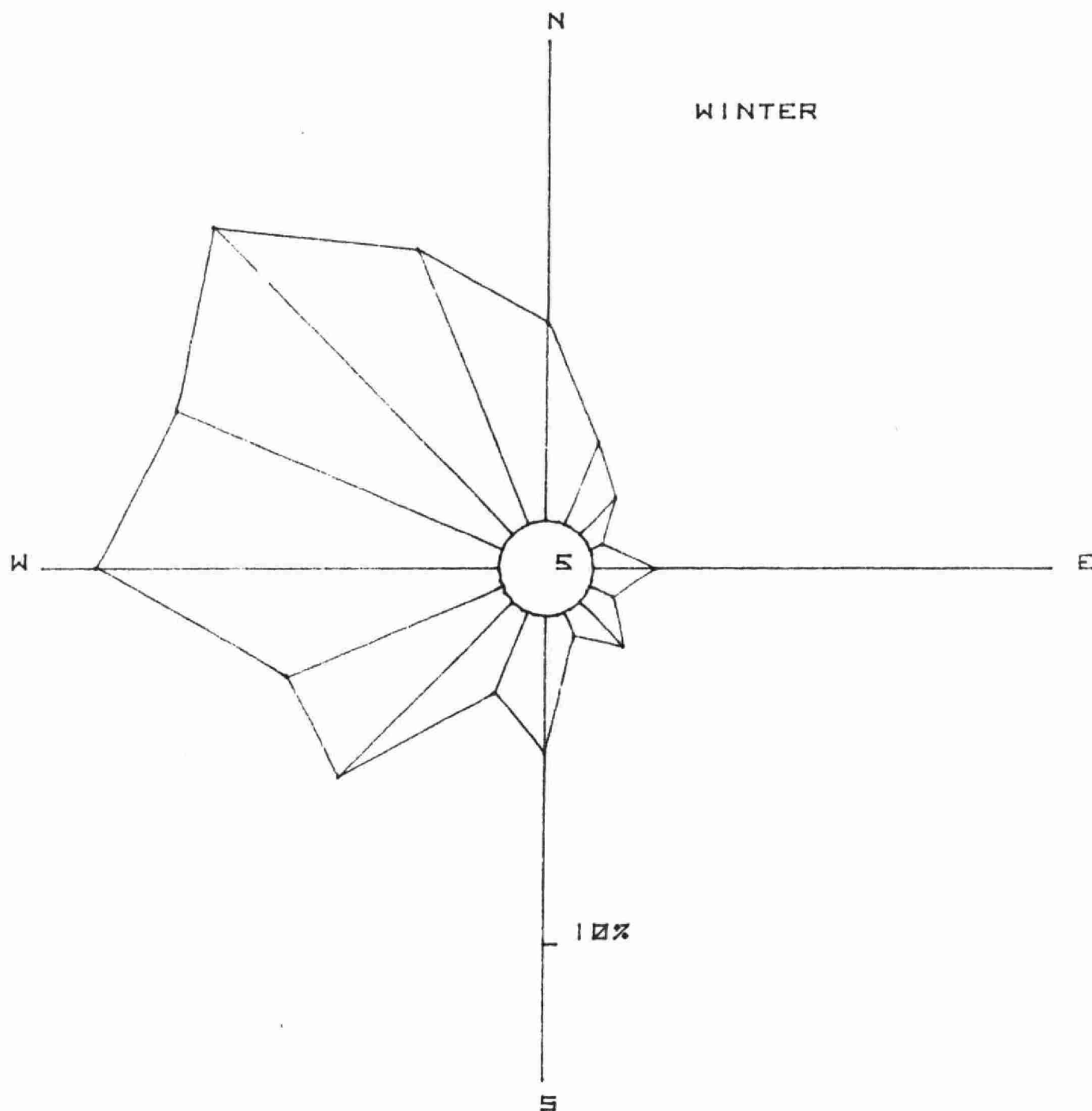


STATION INFORMATION

LOCATED RIVERSIDE DRIVE ON CP TOWER. HEIGHT 46.2M

PERCENTAGE FREQUENCY

N	NE	E	SE	S	SW	W	NW	CALM
7	5	8	5	14	25	21	15	0



STATION INFORMATION

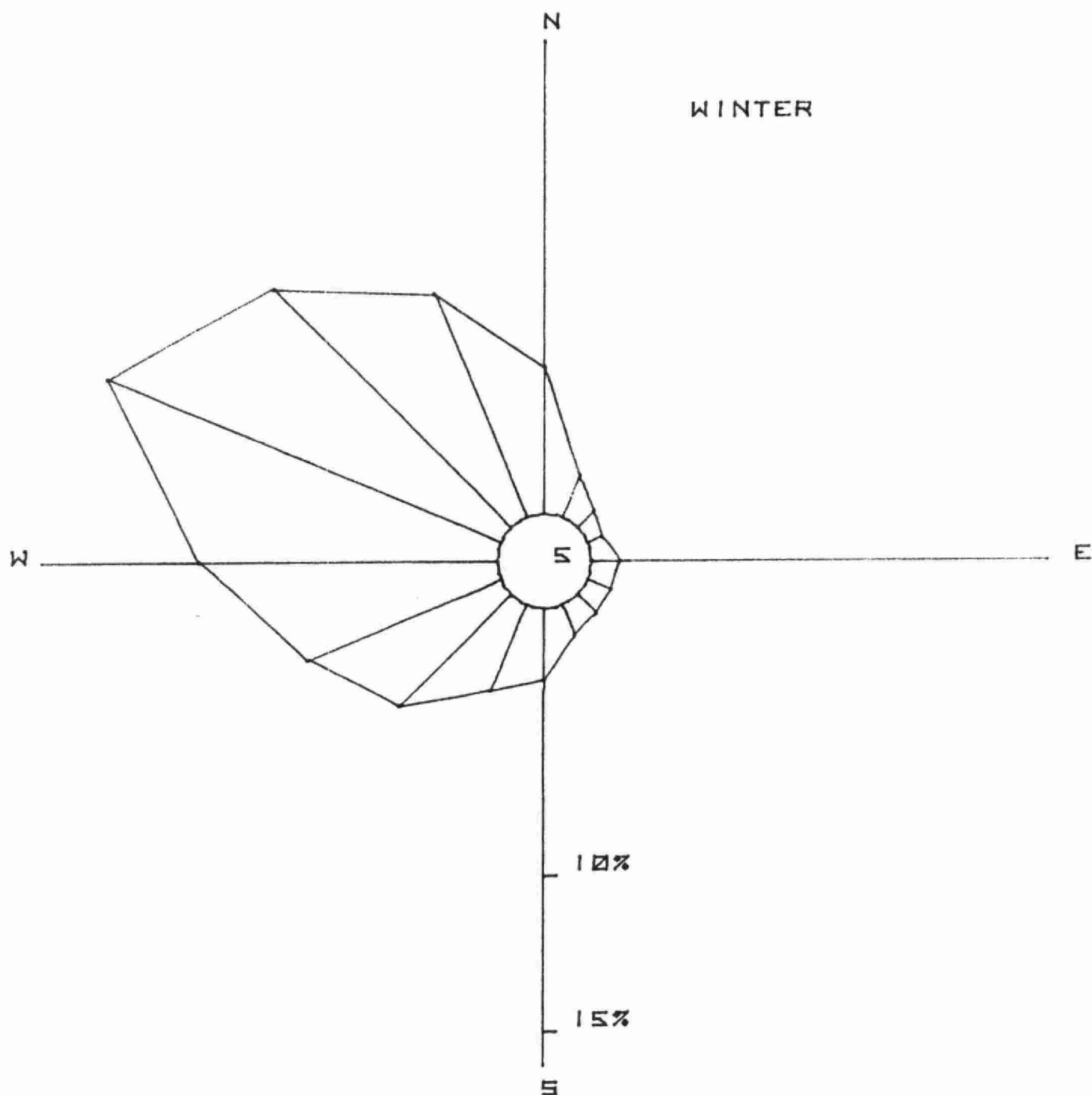
LOCATED IN GENERALLY FLAT COUNTRY, MUSKEG WITH LOW TREES LYING
 APPROX 1.6KM S TO NW OF STATION.
 HEIGHT 13.8 M

PERCENTAGE FREQUENCY

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
7	4	3	2	3	2	3	2	5	4	8	7	12	11	13	9	5

WINISK (A) (AES) 1957-1965
(BIASES REMOVED)

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(12112)

MOE/SEA/ANCP

DATE DUE		

MOE/SEA/ANCP

Ontario Ministry of the En
Seasonal wind roses

for Ontario winter ancp

c.1 a aa